# Forestry policies in the Caribbean

## Volume 2: Reports of 28 selected countries and territories

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# FOREWORD

This regional study on "Forestry Policy in the Caribbean", carried out by the FAO Forestry Policy and Planning Division in cooperation with the Commission of the European Communities (DG VIII-Development), had as its objective: "to contribute to the review of national actions aimed at promoting sustainable forest resource utilization, the follow-up of commitments made by countries in the framework of UNCED and the international assistance to the implementation of forestry policies and strategies". Special attention was paid to the recommendations and actions proposed by the Intergovernmental Panel on Forests, national forestry programmes, Protocol 10 of the Lomé IV *bis* Convention and to the approaches and principles outlined in the EC Forest Sector Development Cooperation Guidelines.

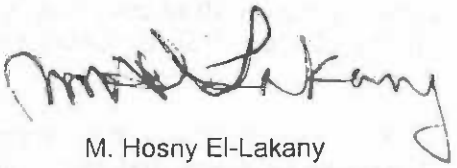
The FAO Forest Resources Assessment 1990 estimated the area of natural forest in the Caribbean region to be 47 million ha, representing 68.3% of the total land area. Forests and trees play a diversified role, depending on the size and economic importance of these resources in each country. Even where forests constitute a very scarce resource, they carry out important complementary functions in support of other critical environmental and economic activities, such as water production, land protection and tourism. In countries where forest resources are more abundant, including Belize, Cuba, Dominican Republic, Jamaica, Suriname and Trinidad and Tobago, they are instrumental in satisfying the needs for fuel, food, medicines, fodder and other marketable products. In all cases, forests contribute to the sustainability of development in a stable and productive environment. Yet, in spite of these known benefits, the annual rate of deforestation in the Caribbean rose to 121 800 ha between 1981 and 1990.

During the past decade, these countries have carried out far-reaching economic reforms, which have resulted in the establishment of different mechanisms for deregulation, privatization, reduction of direct subsidies for specific sectoral development and changes in the role and responsibilities of the state. In the Caribbean, as in many other countries, these reforms have also affected the relationship between people and forests and the approach to forest management. Yet, little is known about the impacts of these reforms and related policies and strategies on the forestry sector, or about the ways in which this sector has responded to evolving demands made by a growing number of groups with varied interests in sustainable development.

In order to gain an improved understanding of the current context and status of forestry policies in the Caribbean region and also of their contribution to sustainable development, detailed reports on forestry policy were prepared for each country and territory covered in this exercise: Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bonaire, British Virgin Islands, Cayman Islands, Cuba, Curaçao, Dominica, Dominican Republic, Grenada, Guadeloupe, Guyana, Haiti, Jamaica, Martinique, Saba, Saint Eustatius, Saint Martin, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, and the Turks and Caicos. The forestry policy reports for these countries and territories were prepared by national and regional experts building on national forestry programmes and sector reviews. These reports were analyzed, summarized and presented for discussion at an Expert Consultation.

The Expert Consultation on Forestry Policy in the Caribbean: "Strengthening Countries' Capacity and Effectiveness" was held in Port-of-Spain, Trinidad and Tobago, from 25 to 28 May 1998. Experts from the Caribbean countries and representatives from national, regional and international institutions shared information and experiences in policy formulation and implementation, analyzed key policy issues confronting forestry in the region, discussed ways to respond to these issues and adapt their forestry policies, and suggested orientations for national and international actions in support of appropriate policies for sustainable development. A Resolution of the Expert Consultation, prepared in response to a request by the participants to be widely distributed in the region and outside it, selected and summarized the main conclusions and recommendations of the meeting.

This publication is presented in two volumes. The first volume contains the proceedings of the Consultation and the analysis and synthesis of the country and territory reports. The second volume brings together the reports of the 28 countries and territories mentioned above. We hope that the information contained in them will contribute to the knowledge and understanding of the forestry policy situation in the Caribbean countries, and serve as a basis for promoting regional cooperation and international support for building-up national capacity for forestry policy formation, formulation and implementation.



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# EXECUTIVE SUMMARY

This study covers 28 countries and territories of the Caribbean region with a combined total population of 33 million people and a forest area of 39 407 000 hectares.

## The outcome

The results of the study provide guidelines for follow-up action by governments and international organizations in the region, aimed at strengthening country capacities for forestry policy analysis, formulation and effectiveness in policy implementation. Such enhancement of capacity is considered indispensable for securing sustainable forest management in the region.

International aid and government efforts should focus on the main issues and strategic areas identified by the country themselves as follows:

- land use planning,
- deforestation,
- sustainable forest management,
- people's participation,
- rights of indigenous peoples and local communities,
- macro-policies and the forestry sector,
- public investment in forestry,
- governance of the forestry sector and institutions,
- policy evaluation,
- water resources and forestry,
- extensive grazing,
- quarrying,
- creation of protected areas, and
- raising public awareness of the environment and development of tourism.

Concentrating action on the above issues will ensure higher effectiveness in addressing the needs of the countries and in creating national capacity for forestry policy analysis.

## Follow-up

A programme approach at regional level is considered to be the best way to respond to the complex task of supporting forestry policy improvement in the region and addressing the issues listed above. Such an approach would address the long list of issues identified in countries concerned. The general development objective of the programme is "to enhance national and regional capacity, to analyze, formulate and implement forestry policies that help improve people's well-being and the sustainable management of forests and natural vegetation in individual countries".

The programme will have the following main components:

- **Policy studies**

The immediate objective of such studies would be to assist countries in addressing the most urgent issues requiring policy analysis. Under this component, issues, such as land use planning, feral grazing, tourism and forestry will be analyzed and policy options identified. This component will require the collaboration of international agencies with government and national experts.

- **Capacity building for policy analysis, implementation and evaluation**

The immediate objective would be to create, in the Caribbean region, a critical mass of policy analysts and the institutional framework necessary for policy implementation, i.e. a regional think-tank on forestry policy. Such improvement in human resources and institutions is expected to develop within the region the capacity for addressing its most urgent needs in forestry policy analysis, formulation and implementation.

This component is envisaged to be developed in close collaboration with regional organizations, such as the University of West Indies, the Caribbean Development Bank and the Caribbean Community and Common Market.

One of the main activities under this component would be the training of government officers and personnel of private and non-profit organizations. To achieve this goal, training will be provided through: formal courses at universities, distance learning programmes, national short courses, workshops on institutional strengthening, exchange of staff between countries in the region and with countries in other regions, internship in international and regional organizations, special programmes and projects for the advancement of public administration pertaining to forestry and policy analysis, and the creation of think-tanks.

- **Information for forestry policies and sustainable forest management**

The objective of this component would be to overcome the constraints faced by countries due to their geographical dispersion and the small population of some of them. Modern communication technology will be adapted for the collection, storage and sharing of strategic information and technical documents by governments and experts in the region. Institutional resources available in the region will also be used to conduct research into demands made by people on forestry and to monitor, on a continuing basis, the achievements and performance of the forestry sector in the region.

## Potential for self-help in the Caribbean region

Human resources with appropriate experience and educational background, government interest, achievements in forestry development and management in some countries, and a network of regional organizations are some of the major potentialities available in the region. Such potential gives the region special advantages for profiting from international and regional collaboration in the field of forestry policy capacity building.

## Regional support

The findings, conclusions and recommendations of this exercise were validated in a regional consultation held in Trinidad and Tobago in May 1998. Some 50 participants attended the event, representing forestry and governmental national planning agencies, international and regional organizations, NGOs, regional development banks and academic centres. The views of the experts from the region are summarized in the following Resolution adopted in the course of this event:

# Resolution of the Expert Consultation

**Preamble**

**Appreciating** the invaluable role played by the Food and Agriculture Organization of the United Nations in collaboration with the European Commission (Directorate-General VIII - Development) and the Government of Trinidad and Tobago in facilitating this Expert Consultation;

**Recognizing** the critical contribution of forests and forestry to conservation, economic and social development in the region;

**Recognizing** that the Study on Forestry Policy in the Caribbean is part of the work that FAO has been carrying out in Europe, Asia, Near East and Latin America which has now been extended to the Caribbean Region, in collaboration with the European Commission, to analyze key policy issues affecting sustainable forestry development;

**Recognizing** that strong commitment and support at political level is essential for ensuring the successful formulation and implementation of forest policies;

**Noting** that, notwithstanding the ecological and territorial diversities which deserve specific individual country studies, there are also common problems and issues which can best be addressed in a regional perspective;

**Aware** that poverty and food insecurity are among the causes of deforestation, as well as forest and environmental degradation;

**Recognizing** that the formulation and implementation of appropriate forest policies and strategies are an indispensable condition for maintaining and enhancing the significant contribution of the forest resources of the countries and territories in the region to the conservation and development of forests not only in the individual countries themselves but also in the world;

**Recognizing** that this study has established that the most relevant issues being discussed in the region cluster around the following categories:

- Forest resources
  - land use
  - deforestation
  - sustainable forest management
  - conservation
  - concession contracts
  - water resources

- Socio-economic aspects
  - macro-policies linkages of with the forestry sector
  - public investments
  - development of tourism
  - people's participation

- Institutional aspects
  - public administration for the forestry sector
  - strengthening of institutional capacity
  - policy formulation, implementation and evaluation
  - strengthening of regional and sub-regional processes related to forestry

**Conclusions**

The participants of the Expert Consultation **agree** that the Study and the analysis reflect the current situation regarding forestry policy in the region and provide directions for action aimed at strengthening the regional capacity for forestry policy formulation and analysis.

The participants of the Expert Consultation further **agree** that the strategy for strengthening forestry policy in the region should be guided by actions in the following priority areas:

- linkages between development and forest resources
- improved country capacity
- regional cooperation
- participation of civil society
- better governance
- national ownership of forest policies
- enhanced international aid to forestry policy formulation

**Recommendations**

The Expert Consultation **recommends** to Caribbean Governments, regional and international agencies and non-governmental organizations that priority attention be given to:

- improved forestry policy processes;
- education and training in resource economics and policy analysis;
- development of information technology;
- adoption of methodologies employed by socio-economists and public administrators in the formulation of forest policies;
- rationalization of the institutions related to forestry and natural resource management to promote their coordination, efficiency and effectiveness;
- establishment of a regional mechanism, within the context of existing regional organizations, for facilitating and monitoring the implementation of forestry policies;
- assistance in the formulation and implementation of land-use plans;
- rationalization and updating of relevant legislation and regulations;
- the rights of indigenous peoples, forest dwellers and other rural inhabitants, so that security of land tenure may be assured and sustainable forest management attained;
- enhancing the awareness of stakeholders and the regional population of the benefits of forests and forestry, and ensuring their effective participation in forest policy formulation and review;
- improving understanding by the governments in the region of the international and bilateral processes now employed to assist countries in the conservation of their natural resources;
- promoting interaction with regional, sub-regional and bilateral organizations; and
- convening a meeting of Ministers responsible for forestry to discuss forestry and forestry related issues.

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# FORESTRY POLICY OF ANGUILLA

By Sheriff Faizool

## 1. INTRODUCTION

## Forestry In Anguilla

**Elements of Forestry:** Anguilla does not have an established forestry sector. However, the Department of Agriculture, the National Trust, the Department of Fisheries and Marine Resources and other organizations are involved in various elements of forestry. Major forestry elements include trees and forest for soil and water conservation, forestry in support of tourism, ecotourism and recreation, biodiversity and ecosystem maintenance, watershed management, wildlife and protected areas.

**Vegetation and Forest Type:** Anguilla's vegetation is strongly influenced by its climate, low levels of rainfall and poor soils. Almost 65 percent of the island is covered with semi-natural vegetation comprising mostly of degraded evergreen woodland which includes such species as white cedar, loblolly, mahogany, frangipani and turpentine. The degraded woodland is interspersed with small patches of grasslands. Most of the island is covered with small trees, low scrub brush, cacti and other drought resistant species. Where the land is rocky cactus dominates, especially the Melocactus intortus (Pope's head cactus). Littoral and strand vegetation can be found along the coast.

In the past centuries, the original dense forest cover was devastated by over-exploitation. Inadequate soil management led to soil erosion and loss of fertility. The present evergreen tropical bushland, 3m to 5m high, covers an area of about 5,500 ha (71 percent). The species composition has been described by Beard (1949). The main species listed by Beard were Loblolly (*Pisonia subcordata*), acacia species, manchioneal (*Hippomane mancinella*)and several fruit-bearing bushes. Some of these species are used for charcoal production. Turpentine (*Bursera simurouba*) and white cedar (*Tabebuia pallida*) serve as fence posts and the latter for the frames in boat building. The formerly widespread mangrove forests have been reduced to insignificant relics. Heavy damage through uncontrolled grazing is obvious in all bush land areas.

**Forest Exploitation:** The exploitation of the woodlands is limited to the supply of some minor local products. Only a small percentage of the population, especially in the poorer rural areas, depends on the use of charcoal and firewood for cooking. Boat building in the past used white cedar for the construction of the frames of fishing boats. This is no longer so. Wattles are the main material for making fish traps. A small number of fence posts is also produced. There is a small demand for wood of valuable species for carving and turning souvenirs for the flourishing tourist market.

**Forest Industries:** There is no primary forest industry on Anguilla. The consumption of wood and wood products should therefore approximate the quantities imported. The secondary forest industries sector consists of three to four workshops with a total of not more than 15 workers and some occasional joinery. Machinery is basic and old and the furniture produced is basic. The main problem is the shortage of skilled labour. Doors and windows are imported, mainly from Brazil and Taiwan.

**Reforestation:** Reforestation is largely limited to amenity planting although some planting has been undertaken in other areas. Species planted with success comprise Australian *pine (Casuarina equisetifolia*), neem (*Azadirachta indica*), mahogany (*Swietenia mahagoni*), *almond (Terminalia catappa*) and many fruit trees. The planting of trees to date has been restricted to single trees around houses, along roads and property boundaries for amenity purposes.

**Agroforestry:** There is no agroforestry practised on the Island but the Department of Agriculture has encouraged farmers to do so when possible.

**Water and Watershed Management:** There are no permanent streams and water is obtained for domestic purposes from rainwater collection and a central distribution system supplied by pumping from the groundwater lenses in the alluvial valley bottoms. Potable water supplies are obtained from rain water collected from roofs and stored in cisterns constructed beneath or beside each property, or from ground water abstraction from wells and reverse osmosis treatment of salt water. The two main aquifers supplying water are located in The Valley. These aquifers contain over 80 percent of the island's groundwater. There is increasing reliance on The Valley aquifer. In 1990 there were two wells tapping The Valley aquifer. Today there are four and a further six wells are nearing completion.

**Wildlife:** Anguilla does not possess the wide variety of wildlife that can be found in other neighbouring islands. Five species of bats are native to the island and these are found in the caves and sinkholes. A variety of seabirds, shorebirds, wading birds, waterfowl and song birds have been recorded in Anguilla and its adjacent cays. Ten species of lizard, one species of snake and land tortoise can also be found on the island. Except for the iguana and land tortoise, reptiles are not abundant in Anguilla, occurring only in undisturbed habitats or adapting to modified ones. The iguana is classified as an endangered species in Anguilla.

**Marine Resources:** Anguilla possesses few natural resources. Its most valuable is the Country's rich and diverse marine environment which forms the basis of its attractiveness as a tourist destination. Generally, Anguilla's beaches are characterized by white sand derived from off-shore reef material and clear waters. Reefs are another significant feature of the marine environment. The Coastal Resource Atlas of Anguilla (Natural Resources Institute, 1994) identified seven types of reefs along the coast of Anguilla: brown algal reefs; soft coral reefs; monstastaca reefs, dead Acropora palmata, porites reefs, crest or millepora and mixed community reefs.

**Mangroves:** Unlike many parts of the Caribbean, mangroves in Anguilla are very sparse. Red mangrove is the dominant species and can be found mostly around coastal ponds where its prop roots provide an important habitat for small and juvenile fish. White and black mangroves are also found in mixed stands closer to land and their substrates are hostile to most other forms of life. Stands of buttonwood mangrove occur high up on beaches.

**The Off-Shore Cays:** A natural resource assessment was carried out on the off-shore cays of Prickly Pear East and Prickly Pear West, Dog Island, Anguillita and Scrub Island. This confirmed that the cays provide habitats for a variety of birds, plants and reptiles. Soils on Prickly Pear West, Scrub Island (near the coast) and Anguillita are extremely thin and shrubs root in cavities in the limestone rock. The predominant vegetation consists of prickly pear, Pope's head cacti and sea grape. Other vegetation includes mauby bark, milky thorn, lignum vitae, sage cop, loblolly, nicker tree (Prickly Pear East), cockspur, balsam bush, sweetweed and gooseberry tree (Dog and Scrub Islands). More developed soils inland on Scrub Island encourage the growth of white cedar, sisal, frangipani, acacia and other species. The off-shore cays are significant nesting sites for a variety of birds. Numerous lizards of the species *Anolis gingivinus* can be found on all the off-shore cays. The other species of lizard sighted was the Ameiva piei (on prickly Pear east, Dog Island, Scrub Island). Some iguanas were reportedly brought ashore at Scrub Island during the passage of Hurricane Luis in September, 1995. There are salt ponds on Scrub Island, Prickly Pear East and Dog Island. The salt ponds on the west and east of Scrub Island contain healthy stands of red mangrove, some of the largest stands found in the territory. The limestone outcrop on its north-east side and vegetated dune on the south result in a pond with high aesthetic quality. Sea turtles are known to nest on the beaches of some of Anguilla's off-shore cays, particularly Dog Island. In addition, sea turtles are also known to feed in the waters near the cays.

**Agriculture:** Low rainfall and infertile soils made Anguilla unsuitable for agricultural development over the years. After emancipation some estate owners abandoned their land while others sold land to freed slaves for them to cultivate. This resulted in the high degree of individual ownership of privately owned land. The country is characterized by a very narrow resource base. Only 17 percent of the area is considered arable. Fishing is the mainstay of about 20 percent of the population. Agriculture gives permanent employment to approximately 2 percent of the population. The wide variation of rainfall makes rain-fed farming uncertain and heavily prone to risk. Extensive livestock rearing is an important source of income for a large portion of the population. As livestock is completely uncontrolled, they cause enormous damage to the natural vegetation and any form of cultivation.

**Fisheries:** Anguilla's fisheries zone extends for 200 nautical miles .The most productive fishery areas around Anguilla include the reefs and sea grass beds. Lobster fishing provides an attractive opportunity for Anguillian fishermen because of the ready local and export markets. Lobster is caught primarily in traps and a negligible amount by diving. However, there is strong seasonality in lobster fisheries. Shallow water reef fish are harvested with fish traps, seine nets and lines. This sector of the industry is dominated by smaller boats not engaged in lobster fishing. Most of the catch is sold directly to St. Martin. High quality red snapper and grouper are caught in deep reefs. It is alleged that most of this fishing is done by fishermen from other islands. Queen conch is found in shallow areas where sea grasses and algae occur. Accessibility is therefore good. High market value also contributes to the heavy pressure for fishing.

However, conch is one of the species listed in the Convention on International Trade in Endangered Species (CITES). Although Anguilla is not yet a signatory to the convention, local fishermen are unable to trade in conch with any country which has already signed on to the CITES. Conch is also listed as a 'commercially threatened' species by the World Conservation Union (IUCN) and is protected in the Article II of the Specially Protected Areas and Wildlife (SPAW) protocol. In March 1995 a five year moratorium on turtle capture (for meat or eggs) was enacted. The island is famous for its surrounding string of living reefs and has some turtle and sea-bird nesting sites. Problems are the illegal hunting of turtles and wild birds, the dying of turtles after swallowing garbage and plastic bags and the over-fishing of the Anguillan Bank, especially for lobster.

## Socio-Economic Profile

Table I is a summary of the economic indicators of the country (CDB,1996)

***Table I -Summary Economic Indicators Of Anguilla***

| *Economic Indicators* | *1991* | *1992* | *1993* | *1994* | *1995* |
|---|---|---|---|---|---|
| GDP EC$ m | 150.4 | 163.7 | 178.5 | 199.3 | 197.1 |
| Real GDP growth at factor cost % | -4.6 | 7.1 | 7.5 | 7.0 | -4.3 |
| Consumer price inflation % | 5.0 | 2.4 | 3.7 | 4.0 | 1.6 |
| Population '000 | 9.3 | 9.7 | 10.0 | 10.3 | 10.6 |
| Exports fob US$ '000 | 441 | 589 | 1026 | 1200 | 1300 |
| Imports fob US$ m | 28.1 | 33.5 | 34.2 | 37.2 | 39.8 |
| Current account US$ m | -7.6 | -14.8 | -10.5 | -10.4 | -17.8 |
| Public external debt US$ m | 7.3 | 8.8 | 12.6 | 8.7 | 8.5 |
| Exchange rate (ave.) EC$:US$ | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |

Traditionally, Anguilla's economy has been dependent on the fishing, boat-building repairs and salt industries. By the 1970s, salt mining was the major economic activity on the Island. Salt production reached a high of 9200 tons in 1967 and the bulk was exported to Trinidad for use in the oil refinery. However, by the end of the 1970s, the adverse effect of heavy rains caused production to decline. Due to the un-competitive cost of the industry and the loss of the lucrative Trinidad market, salt production in Anguilla declined further.

By the 1980s, the focus of Anguilla's economic activity shifted from salt production to tourism as the main industry and major growth sector. Government policy has actively encouraged development of a vibrant tourism sector through investment in large infrastructure projects. These have served to enhance investments by the private sector in hotel and other tourism oriented developments. The economy is now heavily dependent on tourism.

Anguilla's economy grew at an average rate of 7.2 percent per annum (in real terms) between 1992 and 1994 but declined by 4.3 percent in 1995. The decline in economy activity can be attributed to the devastation caused by Hurricane Luis in September, 1995. GDP fell from EC $199.3 million in 1994 to EC $197.1 million in 1995. The most significant declines were experienced in the hotel and restaurant, agriculture and transport sectors which were most adversely affected by the hurricane. The wholesale and retail, mining and quarrying and construction sectors benefited most from the increase on reconstruction and rehabilitation activity which occurred after in the post hurricane recovery period.

Anguilla's economy is characterized by a narrow resource base and small domestic market, both of which have restricted the development of a natural manufacturing sector. There is little manufacturing industry in Anguilla, the activity being limited to boat building operations. In fact, manufacturing industries accounted for only 0.8 percent of GDP and by the time of the 1992 Census, employed only 3.2 percent of the labour force.

The primary sector, comprising agriculture and including crops, livestock and fishing, plays a relatively minor role in the economy. Agriculture contributed only 1.2 percent of the GDP in 1992 and employed 0.6 percent of the labour force (1992). Fishing accounted for 3.5 percent of GDP and 3.7 percent of the labour force in 1992.

There are limited opportunities for diversifying Anguilla's economic base. However, fishing and agriculture should be considered as alternative productive sectors while off-shore financial services present opportunities for growth.

Anguilla's per capita income grew by 8.8 percent per annum from EC$5870 to EC$8948 in the period 1985 to 1990, reflecting a significant increase in the standard of living.

Finance for recurrent public expenditure was through budgetary grant aid from Britain up to 1983. Since its suspension, the government of Anguilla has had to rely on import duties as its major source of revenue in the absence of local income or taxes. Revenue derived from this source has increased considerably (to reach 39 percent of GOA revenue in 1992) due to the growth in consumption and the impact of rising inflation internationally on import prices. A social security scheme that began operating in 1982 is facilitated by employees' contribution of 5 percent of their earnings up to a maximum of EC$24,000 per year and a matching 5 percent from the government.

With improvements since 1985 in the efficiency of its revenue collection system, Anguilla has been able to generate a surplus on its current account in the post 1984 period. The Government of Anguilla proposes to further increase the surplus by broadening the tax base in order to reduce dependence on external financing for capital expenditure programmes. At present, capital expenditure is funded by the UK Government grants via the British Developments Division, CIDA, EDF, USAID and concessionary loan financing from the Caribbean Development Bank.

Inflation in Anguilla rose to 5.1 percent in 1990 from 4.9 percent in 1989. Since then, however, the rate of inflation declined to 2.4 percent in 1992 but increased again to 3.5 percent at the end of 1994.

**Tourism:** Anguilla is in the process of considerable economic and social change. Its proximity to St. Martin and its wealth of white sand beaches have resulted in strong growth in stay over and day tourism over the past ten years. This has contributed to unprecedented levels of physical development and construction activity. Continued pressures for development of the island's coastal and inland areas can be expected for years to come, albeit at a lower level of intensity. Anguilla possesses few natural resources apart from its rich and diverse marine and terrestrial environments that form the basis of its tourism industry. Damage to these resources therefore, strikes at the heart of the island's economic base. Since the mid 1980's tourism has been the leading sector of Anguilla's economy and has had a positive multiplier effect on related sectors such as construction, wholesale and retail trade. In real terms, GDP of the sector grew at 12.2 percent per annum between 1985 and 1990 due to significant growth in visitor arrivals and expenditure. Tourism accounted for 29.5 percent of Anguilla's GDP in 1990, increasing from 27.2 percent in 1985. The success of the sector may be attributed to rapid expansion in hotel room capacity and aggressive overseas marketing and promotion.

In its tourism brochures Anguilla is described as **tranquillity wrapped in blue**. This theme, combined with the strategy of promoting the island as an up-market destination, has proven to be extremely effective since Anguilla's competitive advantage is based on the peace and quiet surrounded by the pristine marine environment and the people. The tourism image is "small and selective." The number of visitors attracted to Anguilla peaked at 125,780 in 1994 from 8,200 in 1980. Visitor arrivals fell to 107,086 in 1995, largely due to the significant drop in visitors between September and December (71 percent less than in the corresponding period in 1994) following the passage of Hurricane Luis in September. Seventy-three percent (73 percent) of visitors arrived by sea while 49 percent came from the USA in 1995. The Caribbean continues to be the second main source of visitors to Anguilla. Most

of the visitors to Anguilla are Excursionists or Day Trippers. These accounted for 64 percent of the Island's visitors in 1995, down slightly from 65.3 percent the previous year.

**Employment:** According to the international criteria on employment there were 5,414 persons of working age (15-64 years) in Anguilla at the time of the 1992 Census. This represents 60 percent of the Island's population. However, the Statistics Office records persons up to age 75+ as being of working age and therefore puts the working age population at 6,224 (69 percent of the population). In 1992 there were 4,121 persons with jobs. Of these 58 percent was male and 42 percent female. This represents an increase of 102 percent over the 1984 total of 2,045. In 1984 the male-female ratio was 63 percent to 36 percent. Increases in female employment could be due to the growth in tourism and increased opportunities for women in the service industries. Another significant feature is the proportion of local Anguillian to foreign workers in the labour force. In 1984, 90 percent of those employed were native Anguillians and by 1992 this figure dropped to 74 percent.

**The Fishing Industry:** The fishing industry in Anguilla is small. It accounts for approximately 4 percent of the total GDP. Although the 1992 Census records only 143 persons as being employed in the industry, the Department of Fisheries and Marine Resources estimates that there are 400 fishermen, most of whom are employed part-time. The fishing fleet consists of 195 vessels. Only one is a fully mechanized vessel with refrigeration facilities that is capable of extended trips for up to five days. Fish is landed at 14 beach landing sites which do not have adequate facilities for storage and marketing of the catch. There is one floating jetty at Island Harbour. The catch is therefore sold fresh at the beach landing sites or direct to the hotels and restaurants. Some are landed directly in Marigot (French St. Martin). It is estimated that 36 percent of the catch are exported to St. Martin. Lobster and finfish are also exported to St. Thomas and Puerto Rico. There is one retail outlet with the facilities to market fresh fish in Anguilla.

# 2. CURRENT FORESTRY POLICIES

Current forestry policy can be divided into two major areas. Firstly, those policies that are international in nature and relate to conventions and agreements that the territory has decided to implement and secondly, there are policies that are national in nature that the Government has implemented or are in the process of doing so. The international conventions and agreements that the Country is party to are as follows:

## International Policies

**International Conventions and Agreements:** As a dependency of Britain, the territory in most instances is party to many of the international and regional agreements and conventions. Officials, however, were unable to identify the extent of participation of the Country in relation to the various international and regional agreements and conventions. One of the overall agreements in place though, is the Country Policy Plan. The arrangement of the Country Policy Plan is as follows:

**Country Policy Plan:** This is an agreement between the Government of Anguilla and the Government of the United Kingdom that is revised regularly. The Agreement deals with the obligations of both parties and outlines the broad developmental policies of all the sectors of the territory.

## National Policies

At the National level, the current policies can be divided into those that are covered by legislation, those that relate to national development and finally those that are implemented by the various Ministries and agencies. The related National policies, therefore, as they relate to legislation and the various sectors are as follows:

**Legislation:** There are a few legislation that relate to forestry but are not implemented.

The legal situation is in many cases uncertain as many laws have been repealed after the separation from St. Kitts/Nevis. Also, new laws harmonizing with Anguilla's Constitution have not yet been elaborated, approved or provided with regulations. The Forestry Ordinance (1904) has been repealed in 1977 and no substitute has yet been passed, although urgently required. The Fruit Tree (Destruction Prohibition) Ordinance (1955), prohibits the cutting or destroying of breadfruit, mango, mammee apple, avocado, sapodilla and soursop. Of great importance to all natural and potential artificial forest areas is the Cattle Trespass Ordinance(1967), but it concerns only horned cattle and parcels of up to 10 ha. The owner of cattle is liable for any damage and the animals may be shot provided a written notice has been passed to the owner. The damage caused by goats, sheep, pigs, etc. is not covered. The law urgently needs revision if cultivation of any kind is to be pursued more intensively. Another related legislation is the Public Pounds Ordinance.

The Wild Birds Protection Ordinance (1913) specifies which species are totally protected and which may be hunted during a stated period of the year. The Turtle Ordinance (1984) covers sea and river turtles and regulates the protection and hunting during certain periods of the year.

The Marine Parks Ordinance (1982) covers not only sea habitats, but also the adjacent land areas, providing for the designation of marine parks to protect the flora and fauna, to preserve the natural beauty and to promote recreation. Compulsory acquisition of land is also possible for public access.

**National Development:** Anguilla in its draft National Land Use (1996) outlined a number of policies and guidelines for managing the natural physical environment.

The strategic aim, as stated in the 1996 draft Plan, is to:

- protect the natural and built environments and to maintain ecological balances;
- conserve areas of natural beauty and historic, archaeological and scientific interest;
- protect and enhance the quality of the environment by minimizing pollution on land, at sea and in the air;
- protect natural vegetation and fauna;
- protect for the management of development in, and the physical protection, of coastal locations;
- protect degradation of the terrestrial and marine environments;
- protect coastal and terrestrial ecosystems;
- to conserve and protect water catchment areas and water resources;
- allow for exploitation of natural resources within the context of sound environmental management and protection practices;
- minimize conflict between non-conforming land uses.

To ensure protection of coastal and wetland areas, the draft National Plan (1996) proposes that:

- no built development should be permitted within the specified distance from the natural vegetation line along the coast;
- all existing sand dunes in coastal areas should be preserved intact, as a first line of natural defence against storm surges, waves and coastal flooding;
- mangroves should be replanted in selected ponds and coastal lagoons and existing mangrove stands should be designated for conservation as critical marine life/wildlife habitats and should not be cleared for construction;
- no effluent should be discharged into ponds or the sea;
- sand mining should be prohibited on the beaches of Anguilla, except at Windward Point. When this source of sand is depleted, construction sand and fine aggregate should be imported or produced locally from quarried rock. Another acceptable alternative is to dredge sand from off-shore locations;
- filling of all ponds to create development land would be prohibited;
- Anguilla's coastline should be the subject of an Environmental Impact Assessment;
- an efficient system for monitoring and managing natural and protected areas is essential to facilitate their judicious use for development without degrading the resource base.

## Sector Policies

A draft agricultural policy was prepared in 1993 by the Department of Agriculture and some of the general features that relate to forestry are as follows:

- to bring all usable land in Anguilla into production of either orchard crops, vegetables and suitable livestock in the backyards;
- to preserve the natural beauty of the island by encouraging soil conservation measures;
- to implement a forestry programme and beautification schemes.

Intensive production systems for quick profits, without due regard for conservation, can lead to degradation of natural resources. This in turn can pose a threat to the sustainability of the agriculture industry. To ensure continuous production as well as a natural beauty of the island, the following measures were recommended in the 1993 draft Agricultural policy:

- preservation of existing ground cover as well as reforestation;
- watershed protection to improve the quality as well as quantity of ground water;
- soil conservation measures on lands exposed for farming as well as for other construction purposes;
- extensive tree planting for general beautification.

The other two related sectors are the parks and protected areas and the fisheries and marine environment. While there are no written formal policies in these sectors most of the policies enunciated in the draft national development plan are in effect enforced and implemented by the agencies with responsibilities for same.

# 3. CURRENT ISSUES AND PROBLEMS

The major issues and problems identified in discussion with the various officials (Appendix C) and as outlined in the Environmental Profile (1993) and the draft National Development are as follows:-

**Plantings:** Larger plantings are hampered by harsh environmental conditions (shallow soils, erratic and poor rainfall), lack of water for irrigation, uncontrolled grazing and poor legal protection of planted areas, financial incentives and lack of technical experience. As there is little scope for artificial irrigation, only better soil and water conservation methods, specially selected varieties tolerant to moisture stress, the manipulation of the planting season and careful maintenance can overcome this situation with certainty.

**Quarrying:** Indiscriminate removal of rocks for building and road construction has scarred many parts of Anguilla's landscape and inflicted severe environmental damage due to the clearing of vegetation and removal of top soil. Apart from its adverse environmental impacts, quarrying also creates noise and dust nuisances. At present, there are activities taking place on an ad hoc basis on relatively small, shallow sites scattered around the island, leaving many small areas permanently scarred. Action should be taken to restrict quarrying to fewer sites which are excavated to greater depths instead of the existing proliferation of small shallow sites. In addition, quarrying may alter the bedrock, allowing new pathways for pollutants to enter the aquifer and contaminate the island's water supply.

**Loss of Agricultural Lands:** Good quality agricultural land is continually lost to built development. This problem is especially acute in The Valley which has the largest concentrations of fertile red loam soils. This area is also the commercial and administrative centre of Anguilla with a correspondingly high degree of pressure for built development.

**The Absence of a National Land Use Strategy:** Land development in Anguilla to date has occurred largely in an ad hoc and uncontrolled manner, in the absence of a stated land use policy and an established tradition of development control. Anguilla is constrained by its limited size and fragile ecosystems and so the problems of uncontrolled development assume even greater significance. The cumulative impact of ineffective controls on land use and development has resulted in visual disorder,

poorly located developments that are inadequately serviced by basic physical and social infrastructure. This results in widespread environmental degradation and has serious implications for sustained development.

**Inefficient Agricultural Practices:** Indiscriminate clearing of trees and vegetative cover for agricultural production, together with inappropriate land management practices have contributed to problems of soil destabilization and ultimately, erosion. The practice of allowing untethered goats and sheep to roam freely over the Island also results in a loss of vegetative cover and critical habitats through uncontrolled grazing. This has further accelerated the denudation of land.

**Damage to the Marine Environment:** Anguilla's marine environment is under considerable stress. The sea and its environment form the basis of both the tourism and fishing industries - Anguilla's main economic earners. Consequently, marine resources tend to be overused and over exploited. This in itself, causes significant resource damage due to carelessness or ignorance of divers and snorkelers at popular dive sites and in the reefs and indiscriminate anchoring in grass patches and among coral reefs by cruise boats and pleasure yachts. These activities cause extensive damage to corals, degrade the quality of the reef and reduce the amount of food and protection afforded by the reef system to inshore fisheries. In addition, over-fishing also depletes inshore fisheries and has caused a decline in the numbers, varieties and sizes of fish and shell fish caught. Also the removal of vegetation and protective cover in the coastal zone for construction activity, leads to increased rates of coastal erosion and leaves coastal areas vulnerable to storm damage and the effects of mean sea level rise. Extensive sand mining has resulted in steady erosion.

**Pollution:** Hotels and restaurants situated along the coast discharge wastes into the sea, visiting yachts and ships which discharge oil and sewage into the sea and solid waste which is washed up onto the beaches along the coast.

**Land Fill:** The practice of filling coastal ponds and at times, converting them into dumping grounds, also contributes to the degradation of the marine environment. Salt ponds are critical as habitats for several species of aquatic birds and they also act as natural traps protecting near shore coral reefs from excessive turbidity. Their ability to perform these functions is destroyed by filling in the ponds.

**Disposal of Solid and Liquid Wastes:** The Environmental Health Department estimates that 52,000 cubic yards of solid waste were generated by Anguillian residents and tourists in 1995. Much of Anguilla's solid waste was previously burned, causing smoke, odour and ash nuisances to residents and tourists alike and atmospheric pollution. However, since March 1996, all burning has ceased and the dump now operates only as a sanitary landfill using a system of trenches which are lined with an impervious layer of compacted marl to prevent leaching. At present, there is no sorting of garbage disposed of at the landfill. This practice will ultimately reduce the lifespan of the landfill. In some areas of Anguilla, the absence of garbage bins at strategic locations and irregular garbage collection schedules, result in unsightly piles of trash alongside public roads and litter strewn along the island's beaches.

Studies have confirmed the increasing nitrate concentration in Anguilla's ground water supplies due to inadequately treated sewage and agricultural and other chemicals seeping into The Valley aquifer. Poorly treated sewage and wastewater from domestic and commercial sources in coastal areas may also enter the sea and coastal ponds. The chemical nutrients in this effluent increase the growth of algae which make coastal waters murky, inhibit coral growth and discourage swimming. The lack of a programme for monitoring and testing water quality makes it difficult to determine the level of pollutants in the marine environment and in underground water resources.

Waste oil from cars and other vehicles is often disposed of by simply allowing it to runoff over the ground, with the risk that it ultimately drains into the aquifer.

**Institutional Structure:** Institutional arrangements within the Government of Anguilla make environmental management very difficult. In 1990, responsibility for the environment was added to the portfolio of the Department of Education and in 1994 was assigned to the office of the Chief Minister. However, this department had no direct line of authority over, or formal linkages, with other government departments with a crucial role in environmental management. These include the

Departments of Land and Surveys Fisheries and Marine Resources, Agriculture, Environmental Health and Public Works, Utilities and Communications.

# 4. PROCESSES AND MECHANISMS OF POLICY FORMATION

The processes and mechanisms of policy formation in Anguilla can be divided into three levels. The first level of policy formation deals with the area of policies that deals with international and regional matters. The second level deals with national matters, while the third and final level deals with matters that relate directly to individual ministries or agencies. The following is an attempt to structure the processes and mechanisms, as discerned by the author during discussions with the various officials in Anguilla (Appendix C).

## International and Regional Policies

International and regional issues and agenda setting are driven externally and are taken aboard as an issue mainly at the Executive level. At times, the Administrative level is brought in, but this is limited. This also applies to priority setting and option analysis. Implementation of the policy though, is primarily done at the Administrative level. Monitoring, control and evaluation are also driven externally by the institutions and organizations responsible for such matters. Matters dealt at this level are usually conventions, protocols and agreements.

## National Policies

National issues and agenda setting are identified not only at the Executive level but may arise out of an issue affecting the community. Priorities and option analysis are usually done both at the Administrative and Executive levels, however, decisions are taken mainly at the Executive level. Policy formation here relates mainly to the national agenda and as a consequence, is well monitored and evaluated. The process is usually initiated at the Executive level where the specific problem or issue is discussed and if a consensus can be reached, then a policy decision is made and handed down to the various ministries for implementation. However, if a consensus is not reached, a committee is usually assigned to research and develop a paper for discussion with relevant agencies and interest groups. This proposal is then forwarded to the Executive for ratification and approval. Once accepted, the policy is then transmitted to the line ministries for implementation. These are usually high-level policies with national implications. The Executive plays the major role in the development of national policies. Formal documentation of these policies, as they relate to all sectors, is now being addressed.

## Sector Policies

At times, there are sector issues and problems that are related directly to an institution and that can be handled by the specific ministry. In such a case, the matter is then handled by the relevant Ministry with little or no involvement at the Executive Level. Forecasting the setting of priorities, option analysis and decision making are all conducted at the Administrative level. The process may also involve a committee and the various stake-holders in all aspects of the policy formation. At times, the process may be extended to include the Executive in the decision making prior to implementation. Notwithstanding the above, in some instances, a policy may just evolve within a Ministry because of past actions. In such a situation, the matter may never be discussed with other interest groups. The Executive also has a major role in developing and shaping sector policies.

The processes and mechanisms of policy formation at this level are not well defined and articulated within the Administrative and Executive levels. In recent times, however, there has been a deliberate effort to enunciate systems and approaches but this will take some time to be established. Overall, it seems that the Executive, in most instances, initiates and develops policy for the government with

input from the administration as and when needed. This approach has evolved, it seems, because of the size of the country and the closeness of the Executive to the issues and problems.

## 5. FORESTRY POTENTIALITIES

There is no primary forest industry on Anguilla. The consumption of wood and wood products should, therefore, approximate the quantities imported. The secondary forest industries sector consists of three to four workshops with a total of not more than fifteen workers and some occasional joinery. Machinery is basic and old and the furniture produced is basic.

The main problem is the shortage of skilled labour. The shallow soil, limited rainfall and small land area greatly limit the potentialities of Anguilla in regard to forest and its primary products.

However, the ground cover, the coastal areas, beaches and marine resources, such as reefs and fishes make it a unique tourist attraction. The potentialities, therefore, of Anguilla are to maintain this naturalness for their overall long term benefit to the Country and the maintenance of a sustainable tourist industry. The remaining shrub forest, salt ponds, cays and mangroves must be properly managed and administered for this and future generations.

## 6. INSTITUTIONAL ARRANGEMENTS

The governmental agencies responsible for forestry and related activities are the Department of Agriculture, the Department of Fisheries and Marine Resources and the National Trust. The agency directly responsible for forestry is the Department of Agriculture. At present, this Department does not employ any forestry personnel and the activities are restricted to the administration of bushlands owned by the Crown.

After the general election in March 1994, the environment was added to the Chief Minister's portfolio, although no specific department has been created, or expanded, to deal with this function. The Chief Minister's office also has responsibility for Land and Surveys, Physical Planning, Tourism, Fisheries and Marine Resources and Agriculture. However, some of these departments urgently need to strengthen and increase their capacity to enable them to perform their tasks effectively. The Fisheries and Marine Resources has administration of all marine and fisheries matters including activities in marine parks and reefs.

The Anguilla National Trust was established in 1993 to act as custodian of Anguilla's heritage, preserving and promoting the Island's natural environment and its archaeological, historical and cultural resources for present and future generations.

The objectives of the Trust are to:

- establish environmental education programmes for all Anguillians;
- promote and preserve the expression of Anguillian culture;
- provide advice on matters relating to natural, cultural and historic resources;
- oversee the management of all areas designated as National Parks, Protected Areas, Heritage Sites/Buildings and the National Museum.

The NGO's involved include the Anguilla Archaeological Society, Marine Heritage Society, Fountain National Park Development Committee(FNPDC), Rotary and Anguilla Beautification Club. All these institutions are involved in environmental education and the planting of trees. The FNPDC was created in 1985 to manage funds for the development of the cave and park facilities. Because of fiscal constraints, very little work has been done in this regard. There is also one large tree and plant nursery that is operated by one of the major hotels on the Island.

# 7. POLICY STUDIES

There is no policy document related to the forestry sector, however, there are a few recent documents that address various issues of the sector. The related documents are as follows:

**Draft Agriculture Policy:** This document was drafted in 1993 by the department of Agriculture and had the input of various interest groups of the Country. While the document is being used, it has not been formalized and adopted. The document covers, besides agriculture, many matters related to forestry.

**Environmental Profile:** An Environmental Profile for Anguilla was completed in 1993 by the Government with technical support from Island Resources Foundation of the US Virgin Islands and UNDP. In addition, the Anguilla Archaeological and Historical Society, also assisted in this endeavour. Initially the document was meant to be in two parts, however, only Part I has been completed so far. Part I dealt with the resources and Part II was expected to deal with the Environmental Manifesto-a document geared at the wider audience of the Country.

**Land Use Plan:** A draft land-use plan was completed in 1996 and is expected to be approved and implemented in 1998. Related legislation has also been drafted and ready for approval. The plan covers many policy directives for forestry and related areas.

# 8. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are made in respect to forestry and related activities in Anguilla:

**Off-Shore Cays:** The cays around Anguilla provide valuable habitat for a variety of birds, including pelicans, boobies, tropic birds, terns, etc. The beaches of Scrub Island and Dog Island are also known to have important, active turtle nesting sites. All the turtles that nest around Anguilla are globally endangered, therefore activities which may threaten their successful nesting should be discouraged, especially during the nesting season. Endemic species of lizards are found on Sombrero and Little Scrub. Establishment of regulations to manage these off-shore cays and enforcement of these are essential.

**Quarrying:** Restrict quarrying to fewer sites which are excavated to greater depths instead of the existing proliferation of small shallow sites.

**Ground Water:** Ground water in Anguilla is limited to The Valley and care must be taken to conserve and manage this scarce resource.

**Sand Mining:** Effort must be taken to minimize the incidence and environmentally detrimental effects of indiscriminate sand mining.

**Land Clearing:** Land clearing and removal of vegetation for built development must be regulated and monitored.

**Plantings:** The soil and water regimes are not conducive to large scale plantings and care must be taken to maintain all natural vegetation and in addition, to landscape and replant trees around the island where possible.

**Conservation of Coastal and Wetland Areas:** The quality of Anguilla's coastal environment is critical to the country's economy. Tourism, the country's main economic activity, depends heavily on Anguilla's scenic coastline and its marine resources. The latter is also important for the fishing industry. Any degradation of the coastal environment, therefore, has a deleterious effect on the economic base and should be discouraged. In addition, the wetland areas surrounding the ponds are of ecological and biological value as important habitats for a variety of species of marine and terrestrial birds as well as nurseries, breeding and feeding grounds for fish and other marine life. Coastal ponds also trap sediments from the land to prevent the silting-up of near-shore coral reefs. Few stands of

coastal mangrove can be found in Anguilla, having been cleared for hotel and residential development. However, Anguilla still has the potential to develop its coastal and wetland resources for nature-based tourism. Appropriate action must, therefore, be taken to ensure proper administration and protection of all wetlands coastal and marine areas. In addition, coastal developments must carefully planned and monitored.

# 9. REFERENCES

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# APPENDIX A – COUNTRY PROFILE: ANGUILLA

**Form of Government:** British dependent territory; the UK-appointed Governor exercises power over defence, foreign affairs, the civil service and judiciary and certain financial matters.

**The Executive:** The Executive Council is presided over by the Governor and consisting of the Chief Minister, currently Hubert Hughes, two ex officio members, the Financial Secretary and the Attorney General and no more than three other members of the Legislative Council appointed by the Governor.

**Head of State:** Queen Elizabeth II, represented on the Island by a Governor

**National Legislature:** Unicameral House of Assembly, directly elected for a five-years term and consists of seven elected members, two ex officio and two nominated by the Governor after consulting with the Chief Minister.

**Legal System:** Based on UK common law as exercised by the Eastern Caribbean Supreme Court of Justice. Provision is made for appeal to the Privy Council in London.

**National Elections:** February 1994; next national election due by February 1999.

**National Government:** The ANP and ADP each hold two of the eight seats on the Executive Council.

**Main Political Organizations:** Government-Anguilla National Party(ANP); Anguilla Democratic Party (ADP); opposition-Anguilla National Alliance (ANA).

# APPENDIX B - BACKGROUND INFORMATION

Anguilla is the most northern of the Leeward Islands and part of the Lesser Antilles, lying between 18° 10' and 18° 18' north latitude and 62° 56' and 63° 16' west longitude. It comprises several small, mostly uninhabited islands. The total area is 91 $km^2$ and the administrative centre is at The Valley.

The present population is estimated to be 10,600 (1995) but it is believed that another 50 percent live and work abroad and return frequently to the island. The annual rate of population growth between 1992-1995 was 3.0 percent. The harsh natural environment has formed the individualistic, self-reliant and extremely independent character of the islander. The population is widely scattered all over the country and there is no real urban conglomeration.

**Physical Characteristics:** The Island covers an area of 35 square miles and is 16 miles long and 3.5 miles at its widest. Anguilla is generally flat and undulating. Crocus Hill, the highest point on the Island is 213 feet above sea level. The northern side of the Island is characterized by coastal cliffs and high ground which slopes down towards the south/south east. In addition, to the main island, Anguilla comprises the associated uninhabited Dog and Scrub Islands to the north west and north east, respectively, Anguilla Island, a number of off-shore Cays and Sombrero Island, a lighthouse and weather station 28 miles north of Anguilla.

**Climate:** Anguilla has a dry tropical climate with mean monthly temperatures of 27° C (80.6°F). December and February temperatures fall as low as 18° C (64.4°F) and during August and September they may exceed 30°C (86°F). The North-East Trade winds are the dominant winds. Mean monthly humidity is 74 percent.

Average annual rainfall of 35 inches (889 mm) occurs mainly during the wettest months of the year, between May and December. However, this level of rainfall may vary substantially from year to year. Anguilla has a high evapo-transpiration rate that could be attributed to the high mean temperatures and strong winds.

## APPENDIX C - CONTACTS

| | |
|---|---|
| Christian, Ijahnya | Executive Director, The Anguilla National Trust. |
| Gumbs, John A. (Rev.) | Parliamentary Secretary (Environment, Agriculture, Fisheries) Office of the Chief Minister. |
| Gumbs, Trevor Lloyd | Nursery Worker, Cap Juluia. |
| Harrigan, Avonelle | Statistical Assistant, Ministry of Finance. |
| Hodge, Roland | Director of Fisheries and Marine Resources, Department of Fisheries and Marine Resources. |
| Proctor, Orris | Principal Planning Officer, Department of Physical Planning. |
| Richardson, Leslie | Director, Department of Agriculture. |
| Vanterpool, William K. | Assistant Agriculture Officer, Department of Agriculture. |

# A REVIEW OF RECENT FORESTRY POLICIES IN ANTIGUA AND BARBUDA

by Rory F. Fraser Ph.D

## FOREWORD

This country policy review represents an output of the first phase of an analysis of forest policies in Latin America and the Caribbean which the Food and Agriculture Organization (FAO) is carrying out in collaboration with regional and international organizations such as the Central American Council on Forest and Protected Areas (CCAB-AP), the United Nations Development Programme (UNDP), Union Internationale de Conservation Natural (UICN), Finnish International Development Agency (FINNIDA), World Resources Institute (WRI), Centre for International Forestry (CIFOR), and the European Union (EU) Project on Agriculture Frontier. It follows similar exercises in Europe, Africa, the Middle East, Asia and the Pacific.

In this documentation phase, FAO plans to draw on and update recent studies, such as the Tropical Forest Action Programme, the Environmental Action Plan and the Country Environmental Profile. What is more important, FAO hopes to learn about the impact of forest policies from professionals, administrators, planners and people directly or indirectly affected by or affecting forests. The study is funded by the Commission of the European Communities in their effort to support the governments of Caribbean Countries in defining, updating and modifying national forestry policies in order to increase the contribution of the forestry sector to national economic and social development through the sustainable utilization of their forest resources. Similar studies have been completed for: Bahamas; Barbados; Belize; Dominica; Grenada; Guyana; Haiti; Jamaica; Montserrat; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Trinidad and Tobago; Aruba, Bonaire, Curaçao, Saba, Saint Eustasius, Saint Martin; Anguilla; Cayman Islands; Turks and Caicos Islands; and the British Virgin Islands.

In an effort to ensure that all facets of forest policy were considered, the following key individuals in Antigua and Barbuda's forestry, natural resources, economic and planning sectors or agencies were interviewed: Everette Williams (Forestry), Donald Edwards (Public Sector), Florita Kentish and Patrick Henry (Agriculture). Hakim Akbar, McKenzie Frank and Peter Frank (Barbuda Council). In addition, studies related to forestry policies conducted over the past five years--by regional and international organizations (Organization of the Eastern Caribbean States (OECS), Caribbean Conservation Association (CCA), Caribbean Development Bank (CDB), University of the West Indies (UWI), UNDP, FAO, etc.)--periodicals, newspapers, national magazines, publications of political analysis, NGOs activities, emergency activities, special programmes of government agencies, the research of universities, reports by consultants, and information provided by news groups on the Internet were reviewed. These sources were augmented by visits and discussions with people living and working in Antigua and Barbuda.

This report attempts to summarize complex information into a document suitable for analysis both at the country and regional level. The document has been prepared in adherence to guidelines, on report organization and content, established by FAO during a pre-consultancy workshop.

# 1. INTRODUCTION

> Antigua-Barbuda's landscape today is a result of natural resources exploitation that began with colonization in the early seventeenth century....only 5,500 acres (of total land area of 69,120 acres) are reported to have been spared...Fields of sugar cane were even observed on the speaks of many hills... *In Antigua and Barbuda Country Environmental Profile*

Antigua has the distinction of being the first place to enact laws to protect forests in the Caribbean. This does not mean, however, that Antiguans are any more aware, or behave any more responsibly, to forests than others in the Caribbean. In fact, it may suggest the contrary. That is, because so little natural forest remains, because people have been excluded from natural forests, and because people have not obtained direct benefits from the forests, they may be unaware and detached about forestry issues. Then again, Antiguans are only part of a nation of islands and their views and attitudes may differ from others in the nation.

The nation of Antigua and Barbuda consists of three islands: the densely populated Antigua, the sparsely populated Barbuda and the uninhabited Redonda. These islands are as far apart, in terms of geography, topography, history, economy, and social organization, as any nation can be. The inhabitants of the two populated islands have very different world views, particularly with respect to ownership and control of their natural resources. Access and participation in the political process, land-use rights and economic benefits from the resources are fundamental differences which have created schisms threatening the political union. This issue will be discussed in greater detail later, but suffice it to say that this variance presents two very different perspectives of forestry and forestry policy. Understanding the context in which forestry laws exist, may help to explain their particular characteristics. Therefore, this report begins with a discussion of perceptions of forestry and socio-economic conditions in Antigua and Barbuda.

## Perceptions of Forestry in Antigua and Barbuda

The term forestry is not frequently used in Antigua and Barbuda. Most people seem to be aware that the term has something to do with trees and were vaguely aware of forestry officers. This was not unsurprising considering that in Barbuda there are no tall or large trees in the flat windswept landscape. In Antigua, there are small stands of trees on the crest of the taller, steeper slopes of this relatively flat island. Trees on these islands represent firewood, fruits or medicinals and are not very prominent in the landscape. A consequence no doubt of earlier land clearing but also of the high winds and hurricanes which buffet the islands.

Living in what has become a predominantly tourist economy, Antiguans and Barbudans, have very little interaction with trees and the interior of their islands. The focus of their existence is the beach, an elevated view of the sea and access to/from other destinations. Most people work in or service the tourist sector which is beach oriented. Those who can afford to, build their homes on hills overlooking the sea and take frequent trips abroad. Those who cannot, yearn to have a home in the hills and a return-ticket to another destination. This perspective means that almost everything--food, drink, building materials, etc.--are imported into the islands. There is very little domestic agricultural, forestry or food production.

Whatever knowledge or concerns Antiguans and Barbudans have about their forest, stem from historical problems with water supplies, soil erosion and fuelwood. As McHenry and Gane (1988) put it

> ....centuries of indiscriminate cutting, clearing for agriculture, uncontrolled grazing and fires have changed the landscape. Now, sadly, much of the land has become degraded to the point that it only supports rough grazing and most of the rainwater runs off. As a consequence, the watersheds are no longer efficient in trapping the rainfall and adequate supplies of water to meet domestic, industrial and other needs are not available throughout the year. The scrub that now covers most of Antigua is too impoverished to contribute significantly to the country's requirements for wood.

Recently, however, there has been greater awareness, at least among public officials, of the need to protect wildlife, some natural areas and heritage. In the 1980s, there was a growing awareness of the economic benefits of heritage and special natural areas in Antigua. Then international attention joined with citizens concerns to formulate wildlife laws. An outcome of this concern is a national forestry policy proposing afforestation, tree protection, controlled harvest and removal, watershed management, wildlife protection and natural reserves. Alternatively, in Barbuda, feral animals, controlled removal of fuelwood, protection of aquifers and economic opportunities from trees are some of the forestry related matters of concern to the islanders.

## A Socio-economic Profile of Antigua and Barbuda

Antigua and Barbuda was rated 29th in the world in 1997 based on the UNDP's Human Development Index (HDI). This is the third highest in the 20 countries, Central American and Caribbean, region: only Barbados (25th) and the Bahamas (28th) are ranked higher. This HDI rating places the nation amongst the top 20 percent in the world in terms of health, education and income. This high ranking can be attributed to high literacy rates (96 percent), high life-expectancy at birth (73.4 years) and a relatively high per capita income (US$7,435, US$1 EC$2.7). In addition, Antigua & Barbuda with 7 percent, has the lowest unemployment rate in the region and with 12 percent has the 3rd lowest poverty rate. On the other hand, Antigua and Barbuda were only rated "partly free" according to a Freedom House rating reported by USAID (1996). This relatively low rating reflects concerns about political rights and civil liberties, only Cuba and Haiti ranked lower.

Antigua and Barbuda are two of the smallest islands in the Eastern Caribbean. Antigua has one of the highest population densities in the region--246.4 people per sq. km. or 69,00 people in a 280 sq. km.(108 sq. miles) area. Barbuda has one of the lowest population densities in the region-- 9.4 people per sq. km. or 1500 people in a 160 sq. km. (62 sq. miles) area. The population is predominantly Christian and of African descent. The infant mortality and crude birth and death rates were 14.1 and 5.6 respectively, in 1994.

The GDP is US$494.5 million with US$443.8 million worth of imports and US$40.9 million worth of exports. The US$402.9 million trade deficit is offset in part by the balance in service US$364.5 million. These statistics underscore the size of the tourist sector which is estimated to account for over 85 percent of the GDP. They also indicate that most of the inputs to this sector are imported and there is a current account balance of US$-20 million and an external debt of US$396 million, one of the highest debt to GDP ratios in the region.

# 2. DEFINING FOREST POLICY IN ANTIGUA AND BARBUDA

A fairly comprehensive forestry and wildlife policy was proposed for Antigua and Barbuda in 1991. This was followed a year later by the National Forestry Action Plan which outlined a programme for the islands. These two documents represent forestry policy in the islands. Concepts of forestry and forestry policy have evolved over the past century. Current laws, management practices and administrative guidelines have been heavily influenced by external agents. In this study, therefore, the term policy takes its meaning from the usage of interested groups and agents.

In the preparation of this study, all uses of the term were considered. Many of the current forestry laws have been in place for sometime, other laws are more recent in origin. There are also current and evolving issues which may result in new or revised policies. In this section, current forest policies and prior analyses are identified, while recent policies are discussed.

## Evolution of Forest Policy in Antigua and Barbuda

The Body Ponds Act No. 15 of 1721 was one of the first laws to protect forests in the Caribbean. This Act which prohibited the felling of trees, came in response to severe deforestation and remained in effect for over 200 years (CCA/IRF, 1991). Subsequently, the Botanical Garden Ordinance and the Botanical Garden Regulations were enacted in 1900 and 1901, respectively. The Wild Birds Protection Ordinance was enacted in 1919 and supported by Proclamation in 1937.

With the gradual decline in the sugar industry after the 1834 abolition of slavery, over 52,000 acres of sugar lands were abandoned by 1938. In the interim, the colonial government tried to revitalize the agricultural economy by enacting a series of land use ordinances, in the 1920s and 1930s, which allowed for land settlement, rental and sale while retaining Government's right to manage water bodies and any land necessary for purposes of forest conservation. In 1941, the Forestry Ordinance was introduced to protect those lands that were still forested at the time, to prevent further deforestation and to reforest estates. This ordinance did not seem to have been enforced because the penalties were too low, boundaries were not established and regulations were lax (Lausche, 1986). In 1952 , Forestry Regulations were introduced in support of the Forestry Ordinance but this did not improve management of the resources. These laws did not apply to Barbuda in the same way they did to Antigua and they operated under different policies.

Barbuda was leased from the crown for one pig per year, if claimed and operated by the Codrington family who arrived in 1674 and started a cane revolution on the island. They exercised private control over the island until 1870 when they relinquished it to the Barbuda Local Government Council, a citizen government. All land use by Barbudans have to be sanctioned by this Council. In 1934, the Barbuda By-Law provided for the lease of government buildings, and for the cutting of firewood. These laws take precedent over the Forestry Ordinance.

There laws have remained unchanged since they were implemented. However, since the 1980s there has been a continued stream of studies which have proposed a number of laws and programmes to address forestry issues in the islands. In 1988, McHenry and Gane recommended a forestry and wildlife policy. A document was prepared and a draft Antigua and Barbuda Forestry and Wildlife Act was submitted for parliamentary consideration since 1991. Nothing has been done to date.

The Forestry and Wildlife Act links forestry to wildlife, soil erosion and water management. It is premised on the inventory of the resources that presently exists and it requires the development of plans to manage these resources. The Act provides for :

(i) the administration, conservation and proper use of forests,
(ii) the protection and management of wildlife,
(iii) the prevention and control of forest fires, and
(iv) all matters connected with these purposes.

Five areas of responsibilities are identified:

(1) providing for forest-based public recreation,
(2) monitoring and controlling all fuelwood extraction, processing and sale,
(3) protecting wildlife, soil and water resources,
(4) establishing / maintaining trees for aesthetic, economic and ecological purposes, and
(5) promoting research, training and education in forestry and wildlife systems.

Eight types of activities were contemplated:

(i) resource inventory,
(i) regulation by inspection, collection and prosecution,
(ii) issuance of permits,
(iii) demarcation of boundaries,
(iv) development of management plans,
(v) research,
(vi) training for staff and the public,
(vii) fire prevention, and
(viii) free planting.

The Act also provides for public participation by allowing public review and comment, the development of cooperative forests and the provision of assistance for private forest landowners.

At present, the forestry and wildlife unit is trying to implement the intent of the Act even though it is not in effect. They have a small budget, a forest technician and four forest rangers and few physical resources to implement their impressive programme. The Tropical Forest Action Plan (1992) identified potential resources to address many of their programme elements, but only a small grant from the United States of America Department of Agriculture in Puerto Rico has been realised. This money is being used to start the Wallings Conservation project. They also cooperate with the Island Resources Foundation on a number of environmental projects. This still leaves a number of problems and issues which have to be addressed.

## 3. CURRENT AND EMERGING ISSUES AND PROBLEMS

There are a number of problems and issues about forestry policy in Antigua and Barbuda. Some of these concerns have existed for some time, others are current and then there are those that are emerging. Reports, other publications and the opinions of interested stakeholders were used to identify the more relevant/ important issues, problems, topics and subjects under discussion.

Antigua and Barbuda face many of the problems of small independent island states. Bass and Dalal-Clayton (1995) contend that in small islands: economies are narrowly based and highly exposed to external economic and political influence, environments are vulnerable to external environmental influence, damaged environments erode indigenous economic and social potential, and suffer many constraints in addressing unsustainable development. These sentiments are echoed by Lorah (1995) who says:

> In Antigua, environmental degradation caused by colonial plantation agriculture is currently exacerbated by short sighted development goals and government mismanagement. The result is highly eroded natural resource base and increasing vulnerability. Just as a colonial legacy of environmental degradation hastened the collapse of Antigua's agricultural sector, current degradation of Antigua's coastal zones threaten tourism.

McElroy, DeAlbuquerque and Towle (1991) identify similar, yet very different problems, such as: routine lack of data, over burdened staff, skill deficiencies and crisis management style; management characterised by particularism--face to face personalise and kinship ties reduce objective decision-making, inhibit confronting serious issues and reinforce the status-quo; geographical remoteness tends to support the slack pace of administration; strong partisan politics and restricted job opportunities lead to caution and high turnover. Gouthier (1997) refers to the peculiarities of Antigua's political situation in her (The Courier) magazine article, as follows:

> The government does seem to be in control, supported by a tacit modus vivendi and taking little notice of the rest of society. Those Chamber of Commerce officials that The Courier spoke to explained this paradox by the closeness of those making up a small society: the village mentality, which turns what outsiders would call corruption into looking after ones own.

Finally, Eyzaguirre (1996) contends that in these economies technology generation and adaptation is impossible to undertake or manage, transaction costs are high and sustaining national institutions is difficult. These problems are best summarised by Pantin (1995) who contends that even though people in the Caribbean are sensitive to environmental issues, they have not yet found the solution to three problems which are, economic survival, the consequences of the socio-economic activities on the environment, and anticipating, avoiding or mitigating the impact of the environment on economic survival.

There were a number of problems and issues that needed attention. The forestry unit was concerned that very little funds were available and there were some projects that needed immediate attention. In the absence of laws protecting forests and the minor fines for offences, the rangers are constantly called upon to advise or coerce farmers from converting land into pasture, coal-burners from cutting large trees, and animal owners from setting fire to areas in order to raise grass for their livestock.

The limited resources also makes conservation activities very difficult. There is pressing need for wildlife sanctuaries, for example, the Great Bird island has 50-150 snakes endangered by rats. They were fortunate in having two of these endangered snakes taken by the New Jersey zoo for breeding and propagation. In addition, there are no urban forests. The towns are stark and rural trees are heavily browsed by grazing animals. A forest planting programme could be facilitated if they had their own nursery and did not have to rely on the Ministry of Agriculture's nursery. Also, they may have been able to keep their Arbour day programme going. However, NGOs such as the Gilbert Agricultural Society and the Jaycees', have promoted tree planting and delivered lectures on the benefits of trees. A major concern of the unit is the lack of environmental assessment when land development schemes, especially on coastal lands, destroy mangrove areas in the process of constructing hotels and housing.

Agriculturist are concerned about the island micro-climate in the absence of trees and would like to see an increase in tree cover. There was also the generally held view that more had to be done to provide a tree cover for water catchment areas and to protect the diversity of species on the islands. The spread of citronella grass as a result of repeated burning is a particularly worrisome phenomenon because it appears to be encroaching on the lower areas of forests and in the water catchment areas, especially Potworks. At the same time, the absence of effective wildlife laws leaves unclear who is responsible for birds, fish etc. which is still under the purview of the Veterinary and Fisheries units.

Major organizational problems faced by linked agencies when confronted with unclear forest policy are: the lack of coordination; the lack of support for initiatives; and the lack of public consultation in decision making. There were workshops and consultancies on coordinating natural resources based activities. Lines of communications between agencies were discussed. However, nothing has been put in place to increase inter-agency cooperation on natural resources management.

There is a perception that political expediency has taken the place of formal decision making processes in forestry matters. It seems as if many decisions are visible quick fixes which reflect negatively on forestry and other linked agencies. As a result, these agencies feel they have been unable to respond effectively to challenges by the public and citizen groups. A way to regain public confidence is through public participation. However, that is also a problem.

Public consultation is not the norm, except in special cases such as that which has happened during the preparation of the national environmental profile by the Caribbean Conservation Association and the Island Resources Foundation (1991). Usually, there are technical level consultations and reports which inform decisions. There are also planning committees for commodity-based groups, such as tree crop owners, but these efforts are not sustained. Most often, however, over-extended personnel have very little time for public consultation since they are most often in a crisis management mode.

There are other issues with respect to research, land-use planning, nature-based tourism and disaster preparedness. There is a very noticeable lack of information about alternative forestry options. There has been exhaustive studies of alternative agricultural crops, such as tomatoes and onions, but very little on alternative tree crops, such as bananas and coffee. Recently, there was interest expressed in Neem but little research was available.

There are no land-use plans inspite of considerable information about the islands resources. Government owns most of the land but controls very little of what is happening. Private land holdings are small and people have used public lands for pasturage. The possibility of significant land transfer has not really been developed. The possibilities of nature based tourism have now begun to be explored and the advantages of tree cover serving multiple purpose could also be explored. There were suggestions that wind-breaks, afforestation of abandoned agricultural lands and urban forest could have significant future benefits if these problems are dealt with expeditiously

Most of the preceding issues are of greater relevance to Antigua. In Barbuda there are other issues that require some attention. According to the Barbuda Local Government Council, a 1904 Ordinance provided the constitution for governing the island. Under this constitution the Warden, now superseded by the Council, has responsibility for regulating what happens on the open scrubland. In 1987, the Council had to take Sandco. and Defcon, two sand mining companies, to court because they pushed over 650 acres of trees, mined the sand and endangered the islands aquifer and environment. However, a 1993 ruling by the nation's high court stated that the Council did not have the right to sue. The Attorney General's office was the office responsible for protecting the nation's resources. The Attorney General did not act and the Council sued him in a novel civil suit which is still under judicial review. This situation represents one manifestation of the tensions which exist between Barbudans and Antiguans with respect to the ownership and control of Barbuda's resources. This problem carries over into most other issues, such as allocation of taxes on the tourist sector, which account for most of the revenue generated on the island.

There are a number of other issues, such as feral and untended livestock and fuelwood extraction. According to the Council's estimate there are close to 30,000 wild animals on the island: 10,000 cows, 4,000 donkeys, 15,000 and over 200 pigs. If these estimates are correct, there are 20 animals for every person on the island, a very high ratio. This animal population is believed to have put a lot of pressure on the resources and are particularly damaging to crop production and tree growing. Fourteen miles of wire fencing to keep the animals out are broken and need to be replaced.

Fuel is relatively expensive and therefore, wood is salvaged from the forest to manufacture charcoal. This salvage is controlled by the Council as is the removal of wood used in making fish pots. However, very little of the land is used even for subsistence crops. The Council has been trying to start a small peanut growing cooperative, but this is still in its infancy.

# 4. PROCESSES AND MECHANISMS OF POLICY FORMATION

Public policies are formed in a series of phases, each with their own rationale. The policy process involves officers and agencies and mechanisms by which policies are formalised and legitimised. In many countries, the process begins with issue search and agenda setting and is completed when decisions and actions are taken to terminate, change or maintain the policy. There are usually several processes of policy formation, depending on the resources, scope and significance of the policies. These processes have been mapped out in Antigua and Barbuda in a study conducted by the OAS and OECS (1989) and are still relatively unchanged.

In the OAS-OECS study, the consultants identified actors and their responsibilities. In the report they documented natural resources laws and the responsible agencies' function, organization, budgets, capacity, capability, decision making and interrelationship . The specific objective of the report was to provide a description of the governmental agencies and organizations involved in the management and administration of the natural resources in the region. Therefore, they did not: indicate how issues and problems were identified and included in the government agenda; discuss the tools--identification of options and selection procedure--used for policy analysis; provide examples of policy tools; talk about how information was obtained for the analysis; report forecasting success; identify how

objectives are determined and articulated; specify the mechanisms for implementation of policy; or determine the a priori conditions for policy evaluation. The CCA (1991) discussed forestry policy in their review of the institutional framework for environmental management.

There was discussion of the policy process with Antiguans and Barbudans supporting the thesis that public policy is an externally driven, top-down process. Most of the programmes, plans and regulations in the forestry sector are the result of externally funded, consultant driven activities. No doubt, local politicians and senior government officials may have assisted in the process. There is also no doubt that these activities are very important to the economic and environmental well-being of Antigua and Barbuda. But, from the reports and discussion there is the distinct impression that many of these activities are truly externally driven. Case in point, the TFAP, an excellent idea with great potential to improve forestry in Antigua and Barbuda.

International and regional forestry and related environmental initiatives in Antigua and Barbuda lead to the development of a draft forestry policy. However, since first proposed in 1988, the Forestry and Wildlife Act has not been ratified into law. This is not unlike what has happened in other islands. After reviewing studies of resource based policies in the Caribbean, James (1997) indicated the lessons UNDP has taken away are: policies need to be country driven, based on comprehensive multi-sectoral analyses, reflect policy reform across the public services, build on and draw from local capacity outside of government while showing tangible field results which benefit local communities.

These lessons have translated into guiding principles: national sovereignty, country leadership, systematic policy and institutional reforms, and awareness of forestry issues at all levels of the society. These lessons and principles are relevant to Antigua and Barbuda, because not only are the policy processes externally driven, but the culture of systematic policy formation is in its infancy.

# 5. ANTIGUA AND BARBUDA'S FORESTRY POTENTIAL

## Forests of Antigua and Barbuda

Lindsay and Horwith (1995) identified 34 ecosystems in Antigua and Barbuda. These are communities that can be distinguished fairly easily in the field based on their vegetation and physical features. Fourteen of these communities were forests. The extent of these forests was not determined. Other estimates suggest 15 percent of the land is forested. Most of the forest is Upland and Gulley forests in Antigua and Wet Limestone Forest in Barbuda. These forests contribute very little to the economies of the two islands.

Antigua and Barbuda support two small tree frogs, a marine toad, 17 reptiles and 17 species of mammals. There were 106 and 74 bird species recorded in Antigua and Barbuda, respectively. None of these species are of commercial importance. Most of the smaller indigenous animals, such as the iguana, are under severe pressure from introduced species, such as the mongoose.

## Forestry Potential

Tree growing for economic, aesthetic and ecological purposes could yield significant benefits to the islands. Commercial agro-forestry could play a role meeting domestic, as well tourist needs for food, fruit and drinks. Some of these crops have been evaluated by an agronomist in the Ministry of Agriculture. There has been expressions of interest in large scale planting of Neem to supply the agro-chemical industry. Other tree crops, such as coffee, palms are also possibilities.

The badly degraded lands, areas alongside gulleys, urban areas and roadways could benefit from gentrification. Tree growing and maintenance could enhance both the urban and rural landscapes. This concept of gentrification has been promulgated by NGOs and service organizations. Relating the

aesthetic value of trees to increased economic benefit to the islands, and visitors could be boosted by a very active Forestry unit.

The badly degraded coastal, hill and gulley forests need an aggressive afforestation programme. The establishment and protection of these forests from developers, farmers and grazing animal and their thoughtless owners, are priorities. The quality and availability of potable water are at stake and so is the potential for irreparable damage to the coastal areas.

# 6. INSTITUTIONAL ARRANGEMENTS

Antigua and Barbuda's institutional arrangements related to forestry have been analysed and reported by Lausche (1986), McHenry and Gane (1998), Bourne (1989), Chalmers (1990), CCA (1991). Three types of organizations are discussed public, private and international institutions.

## Public Institutions

Antigua and Barbuda became a nation in November 1981 at which time a constitutional monarchy was established based on the Westminster model. That is, governance of the nation is the responsibility of a Governor-General who represents the British Monarchy in the state. A bicameral House of Assembly consists of 17 elected members and 17 senators nominated by the Prime-Minister. The Cabinet consists of the Prime Minister and Ministers of GOAD who are appointed by the Governor General on the advice of the elected member of the House who has the support of the majority of elected members. Executive power is exercised by the Cabinet, legislative power by the House of Assembly, and legal power is exercised in a manner consistent with English Common Law. The maximum interim between elections is five years. The same party has been in office for the past 21 years.

Executive authority is vested in a Cabinet headed by a Prime Minister. Each member of the Cabinet is a Minister of GOAD and has executive responsibility for a Ministry. Day-to-day administration of government is the responsibility of the Pubic Service which consist of employees of ministries and other public servants employed by the government.

Forestry is administered by a Forestry Unit within the Ministry of Agriculture. The legislation empowering this agency and the operating plans by which they are guided are presented in Section 2. The head of the Forestry Unit reports to the Permanent Secretary, the highest ranking public servant in the Ministry of Agriculture. The day-to-day responsibility of the Unit is discharged by a forest technician and four forest rangers.

## Private Institutions

There are three active NGOs involved with forestry in the twin islands. The Historical and Archaeological Society (HAS) has been vocal on a number of environmental issues over the past 10 years. The Environmental Awareness Group is an off-shoot of the HAS. This group sponsors lectures and walking tours. They also monitor and raise questions about pollution and other threats to the environment. The third group is the Island Resources Foundation which is a regional organization headquartered in the British Virgin Island. They were instrumental in conducting a very thorough review of environmental issues in the islands (CCA, 1991). They are currently active in coastal zone management projects and recently completed an inventory of the ecosystems in Antigua and Barbuda (Lindsay and Horwith, 1995).

## International and Regional Agencies

There have been significant contributions to Antigua and Barbuda's forestry initiatives in the past 10 years and some have led to the evolution of a number of reserves, protected areas, training, and

developed tourist sites across the region. In recent times, there have been other programmes. Some of the current programmes were listed in the SIDS home page and are tabulated below.

**ID: 457**

| | |
|---|---|
| Project Title: | CARICOM Tropical Forestry Action Plan |
| Country: | Caribbean |
| Funding Source(s): | 1) UK |
| Budget: | BDDC/ODA pds 500,000 |
| Executing Agencies: | CARICOM/FAO |
| SIDS Focus: | capacity building, land resources |
| Description: | Tech Coop Officer to coordinate the preparation of the CARICOM TFAP plus funding for individual country mission loans report and preparation. |
| Time Frame: | 1990-1995 |
| Status: | completed? |
| Sources: | ODA - BDDC - Natural Resources Projects - December 1994 |

**ID: 459**

| | |
|---|---|
| Project Title: | Community Participation in Forestry |
| Country: | Caribbean |
| Funding Source(s): | 1) UK |
| Budget: | BDDC/ODA pds 217,000 |
| Executing Agencies: | CANARI |
| SIDS Focus: | land resources |
| Description: | Increase participation of local communities in planning, management and implementation of activities to conserve forest resources |
| Time Frame: | 1994-1997 |
| Status: | on-going |
| Sources: | ODA - BDDC - Natural Resources Projects -December 1994 |

**ID: 465**

| | |
|---|---|
| Project Title: | UWI External Programme in Rural Development |
| Country: | Caribbean |
| Funding Source(s): | 1) UK |
| Budget: | BDDC/ODA pds 483,000 |
| Executing Agencies: | UWI/U of London Wyes |
| SIDS Focus: | land resources capacity building |
| Description: | Advanced training in agriculture and rural development; concentrates in providing wider training in management of rural development; UWI linked with WYE college to develop materials; post-graduate training in agricultural and rural development through distance learning. |
| Time Frame: | 1994-1997 |
| Status: | on-going |
| Sources: | ODA - BDDC - Natural Resources Projects - December 1994 |

**ID: 482**

| | |
|---|---|
| Project Title: | Small Island Developing States Technical Assistance Programme (SIDSTAP) |
| Country: | Caribbean Global |
| Funding Source(s): | na |
| Budget: | na |

Executing Agencies: UNDP Special Unit for Technical Cooperation Among Developing Countries (SU/TCDC)/CARICAD
SIDS Focus: capacity building
Description: The mandate of this project is to assist SIDS in all geographical regions to meet their needs for technical assistance in support of sustainable development. In the Caribbean, a CARICAD/Bridgetown UNDP collaboration has conducted a survey to identify unmet needs (or gaps) in technical cooperation and capacity building in the priority areas under the 14 Chapters of the SIDS POA. For purposes of analysis and the preparation of project proposals, consultants have identified three generic thematic areas in which technical cooperation needs should be addressed: (i) capacity building; skills development and best practices; (ii) policy formulation, legal and administrative infrastructure and; (iii) socio-economic opportunities and inter-sectoral linkages. "Unmet needs" that should be addressed arise from: (i) inadequate databases and best practices of institutions for technology transfer and skills in areas of sustainable development; (ii) ineffective policy framework and technical facilities for HR Development and Management; (iii) limited capacity of NGOs and CBOs for Policy Advocacy and Impact Evaluation; (iv) weak information and communication systems for decentralized governance and public education to support sustainable human development and; (v) ineffective management of inter-sectoral linkages between tourism, agriculture and the environment. "Unmet needs" are also evident in regard to the "policy, legal and institutional infrastructures" of Caribbean SIDS.
Time Frame: na
Status: on-going :
Sources: fax communique dated Jan. 2, 1997

**ID:486**
Project Title: IFC-GEF Small and Medium Scale... Enterprise Programme 007327
Country: Caribbean Global
Funding Source(s): 1) GEF
Budget: - US$4.3 mln
Executing Agencies: IFC
SIDS Focus: climate change and sea level rise land resources biodiversity resources energy resources
Description: Experimental programme to stimulate greater involvement of private small and medium scale enterprises in addressing two GEF objectives: preserving biodiversity and reducing greenhouse gas emissions. A wide range of project is anticipated including: carbon sequestration, energy efficiency and alternative energy initiatives (which address GEF greenhouse gas reduction objectives) as well as sustainable forestry, ecotourism and harvesting of non-timber products from forests and wildlands.
Time Frame: pipeline?
Sources: downloaded worldbank.org.html

**ID:488**
Project Title: Global Credit and Pre-investment Programme (RG0037)
Country: Caribbean
Funding Source(s): 1) IDB
2) Other

| | |
|---|---|
| Budget: | IDB US$37 mln<br>Total US$142 mln |
| Executing Agencies: | Caribbean Development Bank |
| SIDS Focus: | capacity building land resources tourism resources |
| Description: | Programme to provide financing for productive activities in agriculture, industry and tourism sectors and for infrastructure investments and technical assistance needed by CDB's borrowing member countries and by CDB itself to support these activities. |
| Time Frame: | pipeline (approved May 8th, 1996?) |
| Sources: | IDB Projects - May 1996 - Vol. III Issue 4 |

**ID: 527**

| | |
|---|---|
| Project Title: | A Conservation Assessment of the Terrestrial Eco-regions of Latin America and the Caribbean (Published) |
| Country: | Caribbean<br>Latin America |
| Funding Source(s): | 1) World Bank<br>2) GEF<br>3) World Wildlife Fund (WWF) |
| Budget: | - US$200,000<br>- US$200,000<br>- US$200,000<br>Total US$600,000 |
| Executing Agencies: | WWF IBRD |
| SIDS Focus: | biodiversity resources land resources capacity building |
| Description: | This IBRD/WW F report highlights most biologically valuable and threatened ecoregions of LAC. With limited resources and the need to balance conservation interests and the imperatives of economic development, an objective regional framework can be a useful input to help guide the investment decisions of regional organizations such as the IBRD, GEF, or the major international conservation NGOs, such as the WWF. To this end, the IBRD contracted the WWF to carry out an in-depth study to assess the conservation status of terrestrial biodiversity in Latin America and the Caribbean. LAC was divided into 178 natural terrestrial units, called ecoregions, as well as 13 mangrove complexes. The report includes a fold-out colour map of same. Using an approach based on the science of landscape ecology conservation biology, the conservation status and biological distinctiveness of each ecoregion was determined. The result is the book "A Conservation Assessment of the Terrestrial Ecoregions of Latin America and the Caribbean", published in late 1995. |
| Time Frame: | mid-1995, project duration 30 mths |
| Status: | completed |
| Sources: | 1) Communication to Erik Blommestein, UN. ECLAC dated May 8th, 1996 |

**ID: 528**

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| Project Title: | Study of Critical Natural Habitats in Latin America and the Caribbean (forthcoming publication) |
| Country: | Caribbean<br>Latin America |
| Funding Source(s): | 1) Italian Consultant Trust Fund (Gov't of Italy)<br>2) World Bank |

Budget: Italian Trust Fund US$350,000
IBRD US$50,000
Est. Total US$400,000
Executing Agencies: IBRD
SIDS Focus: biodiversity resources land resources capacity building
Description: This forthcoming publication (approximately five volumes) would identify and locate many of the most important sites for biodiversity conservation within most LAC countries; these sites warrant special attention in project planning and implementation, and this site-specific compendium of Critical Natural Habitats is expected to be a very useful tool for i) environmental impact assessment of proposed new development projects; and ii)identification of high-priority sites for conservation projects, whether supported by the IBRD or other organizations.
Time Frame: 1996-1997 (project duration 18 mths)
Status: on-going
Sources: Communication to Erik Blommestein, UN. ECLAC dated May 8th, 1996

**ID: 533**
Project Title: Development & Maintenance of Database of on-going and planned SIDS-related projects and programmes in the Caribbean
Country: Caribbean
Funding Source(s): 1) UNDP
Budget: US$116,000
Executing Agencies: UN. ECLAC
SIDS Focus: capacity building
Description: Project consists of maintaining and expanding the coverage of a database of on-going and planned SIDS-related projects and programmes. The first activity is to maintain the current coverage of the database. Specific tasks include the searching of Internet and WWW resources, use of written documentation such as UNDP Development Reports or newsletters, follow-up by telephone, fax and e-mail and entering the information in the database. This will be an on-going activity. The second activity will focus on completing the coverage of externally funded projects and programmes. Coverage of the databank will be expanded to include nationally-funded projects and programmes. The next activity will be to enlarge the substantive content of the database by introducing a searchable keyword register a and expanding the current summaries. The final activity will be to prepare and keep up-to-date Web pages.
Time Frame: 06/1996-06/1999
Status: on-going
Sources: UNDP - Appraisal Format for Activity Proposals for Funding by SU/TCDC

Project Title: Capacity 21 Project - CDB/UNDP Cooperation - CARICAD Programme for Strengthening Capacity for Sustainable Development in English-speaking Caribbean
Funding Source(s): 1)UNDP/Capacity 21
2)Gov't./CARICAD
Budget: - UNDP US$750,000
- Gov't./CARICAD US$100,000
Total US$850,000
Executing Agencies: CDB (CARICAD - Implementing Agency)

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| SIDS Focus: | capacity building |
| Description: | The objective of this project is to strengthen the national and regional institutional capacity to pursue medium- and long-term sustainable development activities in an integrated manner, thus ensuring greater cooperation among all the concerned actors (governmental and non governmental organizations, the private sector) and the achievement of more cost-effective and innovative approaches. In-depth objectives are as follows: i) development of consultative processes in selected islands that ensure the revision and implementation of the results of the SIDS conference and its implications at the national and regional level, as well as the revision of NEAPS, EIAs and other studies; ii) establishment of Sustainable Development Councils in each of the islands, ensuring the involvement of the governmental, NGOs and private sector; iii) collaboration of CARICAD and some leading regional institutions - CDB, UWICED, CCA, several regional NGOs and Barbados External Communications (BET) in the development of a Sustainable Development Network (SDN) among the islands in order to electronically share sustainable resource information, human resources, and valuable experiences so as to avoid duplication of efforts and optimize the rational use of human and institutional capabilities, and the available data on research and projects for the development of incrementally efficient activities; iv) to selectively train the Sustainable Development Councils at the regional level in updated processes and current issues; and v) to facilitate Interagency coordination among international donors and other support agencies in the region to maximize benefits from their interventions. |
| Time Frame: | 1994-1997 |
| Status: | on-going |
| Sources: | 1) UNDP Project Document - "Strengthening Capacity for Sustainable Development in English-speaking Caribbean"<br>2) Caribbean Centre for Development Administration CARICAD/ UNDP/CDB Capacity 21 Project - Status Report<br>3) Caribbean Development Bank - Status of Technical Assistance Projects Under Implementation. As of June 30, 1996. |

# 7. POLICY STUDIES

Forestry policy studies have been part of other studies. In this section, information on research and other activities--carried out for the purpose of understanding policy formation--is presented. Some of the areas addressed by these studies might have been: how policies are made (process study); what policy assumptions and proposals were examined (policy content analysis); what analytical methods were used in identifying and selecting options (meta-analysis), what impacts were identified and how cost effective were implemented policies (policy evaluation). Studies carried out during the last 10 years were examined and relevant details are tabulated below.

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| **Name of Study:** | **Description of National Legislation Related to Natural Resources Management** |
| Purpose and Main Objective: | To improve the capacity of the OECS and its member countries to plan the use of resources and land. |
| Sponsor and Implementing Agency: | |
| Funded by: | OAS-GTZ |
| Publication by: | OECS-NRMP |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | May to November 1986 |

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| Research Methodology: | Interview government officials and Document search for legislation |
| Type and Sources of Information: | Personal comments and legal documents. |
| Results of Study: | Compilation of legislation, preliminary analysis and observations, and recommendations for follow-up. |
| Scope of Study: | National report |
| Follow-up: | Institutional analysis in the area of natural resource management: the case of Antigua and Barbuda. |

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| **Name of Study:** | **Institutional analysis in the area of natural resource management : the case of Antigua and Barbuda.** |
| Purpose and Main Objective: | An assessment of the institutions in Antigua and Barbuda concerned with the management of the natural resources of land, forests, water, tourist amenities such as beaches, parks and wildlife, and waste management. |
| Sponsor and Implementing Agency: | |
| Funded by: | OAS / OECS-NRMP / GTZ |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | n/a, completed November 1989 |
| Research Methodology: | Interviews with senior government officials and document search. |
| Type and Sources of Information: | Organizational charts, budgets, application forms and licences, manpower surveys, planning documents, and matrices of institutional responsibility from government departments. |
| Results of Study: | This assessment details the organization and functions of institutions, the interrelationships between them, the legislation governing them, and their adequacy and resource capability of these institutions for managing Antigua and Barbuda's natural resources. |
| Scope of Study: | National |
| Follow-up: | National Resource Accounting for Antigua and Barbuda, 1992 |

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| **Name of Study:** | **Report to the Government of Antigua and Barbuda on Forestry and Wildlife Policy and Legislation** |
| Purpose and Main Objective: | To assist Antigua and Barbuda in the upgrading of national policies and legislation relating to forestry and wildlife. |
| Sponsor and Implementing Agency: | |
| Funded by: | FAO |
| Implementation: | FAO Consultants |
| Budget and Duration, | |
| Budget: | n/a |
| Duration: | May 1987 to February 1988 |
| Research Methodology: | Review of existing policy and legislation relating to forestry and wildlife. |
| Type and Sources of Information: | Interview government officials, review literature and tour island. |
| Results of Study: | A draft policy for the development of forestry and wildlife taking into account the six essential features on which the policy depends - water, soil, heritage, output, participation and public awareness. It identifies the obstacles to progress as the |

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| | inadequate basis for resource management, that is, the need to secure land for resource management through purchase or lease, the misuse of the land in the watersheds, the under utilization of the land and resulting low productivity and the economic capacity of the island. It proposes a strategic programme for overcoming the obstacles outlined, including the need for legislation to implement this. It also proposes the detailed legislation which should be enacted (IRF library summary). |
| Scope of Study: | National |
| Follow-up: | FAO TFAP proposal preparation, 1990 |
| **Name of Study:** | **Antigua and Barbuda: country environmental profile** |
| Purpose and Main Objective: | To document Antigua and Barbuda's environment and environmental problems, and recommend public policies which would lessen and even prevent negative impacts on the resource base. |
| Sponsor and Implementing Agency: | |
| Funded by: | United States Agency for International Development. |
| Publication by: | Caribbean Conservation Association. |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | February, 1990 to April, 1991 |
| Research Methodology: | Interview public officials and private individuals and groups. Reviews of national, local, regional and international documents, papers, laws, reports, academic publications. |
| Type and Sources of Information: | The most exhaustive data on all aspects of Antigua and Barbuda's economy, environment and natural resources. |
| Results of Study: | An environmental profile of Antigua and Barbuda which includes a detailed review of the extent and economic importance of the islands natural resources and the changes in the quality and productivity of those resources. It reviews the institutions, legislative policies, and programmes which impact environmental planning, economic development and natural resource management and it identifies the major issues, conflicts or problems in natural resource management. (IRF library notes) |
| Scope of Study: | National |
| Follow-up: | Environmental agenda for the 1990's : A synthesis of the Eastern Caribbean country environmental profile series. |
| **Name of Study:** | **Environmental agenda for the 1990's : A synthesis of the Eastern Caribbean country environmental profile series** |
| Purpose and Main Objective: | To provide easy access to individual country profile findings and recommendations and therefore to increase their visibility to a wider audience of Caribbean leaders--both political and environmental.. |
| Sponsor and Implementing Agency: | |
| Funded by: | United States Agency for International Development. |
| Publication by: | Caribbean Conservation Association |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | June, 1991 to September, 1991 |
| Research Methodology: | Summary of findings in six national environmental profiles. |
| Type and Sources of Information: | Nine islands/ environmental profiles. |

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| Results of Study: | An overview summary of the key environmental issues and problems identified in the six country environment profiles for Antigua and Barbuda, Antigua and Barbuda, Grenada ,St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines. (IRF library summary) |
| Scope of Study: | Regional summary with some national level findings. |

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| **Name of Study:** | **FAO Tropical Forestry Action Plan: For Nine Caricom Countries: Report on Preparatory Mission** |
| Purpose and Main Objective: | Determine the number, size and composition of TFAP missions required and prepare detailed draft |
| Sponsor and Implementing Agency: | |
| Funded by: | FAO |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | October, 1989 to March, 1990 |
| Research Methodology: | A series of meetings with public officials, diplomats and regional and international agencies. |
| Type and Sources of Information: | Anecdotal information and CDB Social and Economic Indicators for 1988. |
| Results of Study: | List of contacts, summary of important issues/ideas/concepts discussed, and summary statistics. |
| Scope of Study: | Regional--Caricom except Guyana, Jamaica and Belize |
| Follow-up: | TFAP missions. |

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| **Name of Study:** | **Framework for Action: National Implementation of SIDS-POA** |
| Purpose and Main Objective: | An assessment of the implementation of the Small Island Developing States Plan of Action (SIDS-POA) |
| Sponsor and Implementing Agency: | |
| Funded by: | ECLAC/CDCC with assistance of Antigua and Barbuda's Sustainable Development Council |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | completed November 1997 |
| Research Methodology: | Questionnaires were mailed to 23 CDCC member countries and information provided by country Coordinators. |
| Type and Sources of Information: | National programmes |
| Results of Study: | Review of 14 programme areas and implementation activities. Including the five most successful initiatives, a rating of the 14programmes relative to national and regional/international levels of implementation, a ranking of cross sectoral issues, identification of constraints to implementation, recommended actions to overcome constraints and major challenges, priorities and elements of strategy for future implementation of the SIDS-POA in the next five-years. |
| Scope of Study: | National |
| Follow-up: | Inform the Caribbean Ministerial Meeting on Implementation of POA, November 10-14, 1997 |

# 8. CONCLUSIONS AND RECOMMENDATIONS

The state of Antigua and Barbuda is one of the more affluent countries in the region. The tourist industry has turned the country's economic fortunes around. However, schism between the two islands persist because of differences with respect to the control and use of Barbuda's resource. The tensions in this issue are at the root of other resource based problems. There is a perception that the government is not exercising proper stewardship of the nation's resources. The relatively unrestricted growth of construction in the tourist sector occurs in the face of declining natural resources integrity. Some observers warn of the collapse of the tourist economy for the same reasons the sugar economy collapsed, degeneration of natural resource capital.

The decline in the resource base is occurring because benign neglect by the government is leading to abuse by the citizenry. This situation remains in spite of the existence of carefully crafted policies that have been drafted over 10 years ago. There has been no major commitment by the government to provide resources to implement plans. Instead, it seems, the problems of degrading lands, inadequate freshwater systems and gradual dissipation of biodiversity are matters to be addressed by interested groups and external agencies.

Regional and international agencies have responded by providing a range of technical, educational and capacity building support. These actions have led to coordinated actions regionally to help nations, such as Antigua and Barbuda, deal with some of these issues. This effort may result in more responsible management of the nation's natural resources. However, these efforts can prove futile without the commitment of the government and people of the island working to ensure the success of this activity. Historical precedent suggests this is a daunting task because there is very little evidence of public participation in decision making processes.

Developing effective forest policy for Antigua and Barbuda requires local commitment. Education programmes, incentives and technical support have to be moved off the pages of draft documents and into the hearts and minds of land owners, land users and land managers.

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# ACRONYMS

| | |
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| AIDS | Agricultural, Industrial, and Development Bank |
| CANARI | Caribbean Natural Resources Institute (formerly ECNAMP) |
| CARDI | Caribbean Agricultural Research and Development Institute |
| CARICOM | Caribbean Community |
| CCA | Caribbean Conservation Association |
| CDB | Caribbean Development Bank |
| CEP | Country Environmental Profile |
| CFRC | Commonwealth Fund for Technical Cooperation |
| CIDA | Canadian International Development Agency |
| CITES | Convention on International Trade of Endangered Species |
| ECLAC | Economic Commission for Latin America and the Caribbean |
| EGNAMP | Eastern Caribbean Natural Area Management Program (renamed 1989 as Caribbean Natural Resources Institute, CANARI) |
| EEC | European Economic Community |
| EU | European Union |
| FAO | Food and Agriculture Organization of the United Nations |
| GDP | Gross Domestic Product |
| GOAB | Government of the Commonwealth of Antigua and Barbuda |
| GTZ | German Agency for Technical Cooperation (Gessellschaft fur Technische Zusammenarbeit) |
| IDA | International Development Association (World Bank) |
| IFAD | International Fund for Agricultural Development |
| IICA | Inter-American Institute for Cooperation on Agriculture |
| ILO | International Labour Organization |
| IRF | Island Resources Foundation |
| IUCN | International Union for the Conservation of Nature and Natural Resources |
| LAC | Latin America and the Caribbean |
| NGO | Non-Government Organization |
| OAS | Organization of American States |
| ODA | Overseas Development Administration (UK) |
| OECS | Organization of Eastern Caribbean States |
| OECS-NRMP | OECS-Natural Resources Management Project |
| REMS | Regional Environmental Management Specialist (USAID) |
| UK | United Kingdom |
| UNDP | United Nations Development Program |
| UNEP | United Nations Environment Program |
| US | United States |
| USAID | U.S. Agency for International Development |
| USAID/RDO/C | USAID/Regional Development Office/Caribbean |
| UWI | University of the West Indies |
| WWF | World Wildlife Fund |

# COUNTRY REPORT ON FORESTRY POLICY IN THE BAHAMAS

**by Christopher C. Russell**

## EXECUTIVE SUMMARY

The Bahamas possesses considerable natural forest resources, comprising pine forests, coppice hardwood forests and mangrove forests. It has had a long history of forest exploitation dating back to the 1700s when almost the entire hardwood resource was exploited as logs for export. The last extensive exploitation ended in the early 1970s when the pine forest resource was harvested for pulpwood. Sustained yield practice was not the "order of the day" during those formidable years. No man-made forest plantations were or have been established. The existing forestry institution (Forestry Section - Department of Lands and Surveys) is critically understaffed and under financed to effectively undertake its mandate. Today, no commercial forest industries exist, with the country importing all its wood products to the sum of $63,000,000.00 in 1995.

However, the forest resource offers considerable potential for future small-scaled forest based industries to help reduce the wood product import bill and include sawmilling, artifacts and wood carvings, joinery and charcoal production. Some non-wood product opportunities include conservation of biodiversity, game hunting, ecotourism and environmental enhancement.

Within the current context of the Bahamian economy, the forestry sector can best be described in terms of the goods and services that can be derived from the natural resource. Historically, the sector focused primarily on forest resource exploitation, as the dominant component of the forestry sector. Today, the focus has shifted more towards the other tangible and intangible benefits of forestry, including resource conservation and environmental protection.

Numerous issues and problems impacting the forestry sector in the Bahamas were identified and discussed. The significant issues included the future of forestry in the Bahamas, were argued in favour of placing the forestry institution under the Department of Agriculture, to ensure its mandate is effectively carried out. Others felt it should remain with the Department of Lands and Surveys. The debate on this issue continues.

The lack of public education and awareness is seen as a critical problem in the Bahamas, where the general population, including the mass media has limited knowledge on forestry matters. Agriculture is identified as the main competing land use with forestry, in addition to the lack of effective land use planning for development, which has resulted in the destruction of forest based resources at the expense of development. The compatibility of water development and forestry was described as a means to justify the existence of the forestry sector, in light of the significant importance of water resources of the Bahamas, in most cases located beneath the pine forest and coppice forest in the form of water lenses.

In terms of forest policies, currently a National Forest Policy Statement exists, having being drafted in 1986, as part of a National Forestry Development Project. However, the Government of the Bahamas is presently reviewing the policy as the authority for future forestry development, although the forestry institution uses the policy as a guide to undertake its responsibilities. Other forest polices exist, including a draft Forestry Legislation awaiting enactment from Parliament, and a National Forestry Development Programme (NFP).

In formulating forestry polices, no formalized process exist. Evidence suggests an ad-hoc process, with a reactionary as opposed to a proactive approach to forest policy. Usually an environmental crisis has to occur before government steps in to address the issue. Consultants are usually recruited to assess the situation, then make recommendations to the Government. The Government would in turn

begin the implementation of the corrective measure. There is no formalized mechanism for forecasting, setting objectives and priorities, and option analysis.

The implementation of the policy is usually short lived, due to a "lack of political will", and inadequate sustained funding and human resources. There is no system in place to effect monitoring and control of the policy provisions, nor evaluation and review. What then follows, is an automatic abrupt termination of policy due to the lack of its effective implementation.

# 1. INTRODUCTION

## 1.1 Context of the Study

Agenda 21, the principle product from UNCED at Rio in 1992 called for the integration and coordination of policies and strategies at national and international levels towards achieving the ultimate goal of sustainable development. Specifically, Chapter 11 **"combating deforestation"** the principle chapter on forestry issues of AGENDA 21, called for more effective and improved measures and approaches at the national level. Also harmonizing policy formulation, and planning. In addition to the inter-sectoral coordination in sustaining the multiple role of forests and forestland. The chapter further called for the integration of national forestry programmes and plans for the management, conservation and sustainable development of forests with other land uses; and to ensure their integration within national planning and decision-making processes.

The Forest Principles, which also emanated from UNCED and covered all aspects of forestry, focused on the need to develop policies towards sustainable development. It specifically states that:

> "National policies and strategies should provide a framework for increasing efforts, including the development and strengthening of institutions and programmes, for the management, conservation and sustainable development of forest and forest lands".
> (Forest Principles, UNCED, 1992)

The Forest Principles also emphasized the need to integrate "all aspects of environmental protection and social and economic development as they relate to forests and forest lands" in a most comprehensive manner.

Within the context of global agendas for forestry, including the conclusions, recommendations and proposals for action from the final report of the Intergovernmental Panel on Forests (IPF) of the Commission for Sustainable Development (CSD), as endorsed by the FAO Committee on Forestry (COFO) at its 13th Session held in March 1997; the Food and Agriculture Organization of the United Nations (FAO) in cooperation with the Commission of the European Communities, has embarked upon a study on Forest Policies in the Caribbean Region.

The study is designed to support the governments of the Caribbean Countries in defining, updating and modifying their national forest policies in order to increase the contribution of the forestry sector to national economic and social development through the sustainable utilization of forest resources. The basic information for this study will be constituted by the country policy reviews of each of the countries included in the survey.

## 1.2 Study Expectations, Uses and Benefits

Each country study will contribute to identifying the main issues affecting the forestry sector as a consequence of current social and economic trends and policies, as well as the ways and means forest policies are being reformed towards sustainable development and the recommendations of AGENDA 21. The survey will assist in understanding the mechanisms through which forestry policies

are formulated, implemented, their consequences and the need for policy improvements. At the Caribbean Regional level, it will contribute to the discussion of common issues and to establishing collaborative approaches in specific areas.

The Caribbean Forest Policy survey process comprises four Phases. The first (Phase I) involves the selected Caribbean Countries Consultant's preparation of descriptive Country Reports on forest policy in their perspective countries (What is?). Phase II comprises a comparative analysis (prescriptive) of the selected country reports in a Regional Report on Forest Policies in the Caribbean.

Phase III will involve a consultative workshop with the experts, prescribing (What ought to be!). Phase IV would involve a Regional Seminar on Forestry Policy in the Caribbean to be held in the latter part of 1998, with the decision-makers, specialists on forestry and environment, related NGOs and Donor agencies, whose focus would be on the affirmation of the product (study). The seminar will provide national and regional authorities with an update analysis of the economic, social and environmental significance of the forestry sector, to economies of the region. It is expected that the study will strengthen the National Forest Programmes (NFPs) currently ongoing in selected countries. An account will be taken in the study where appropriate, the recommendations of the IPF, specifically related to the NFPs; Protocol 10 of the Lome Ivbis Convention and the outlines in the EC Forest Sector Development Cooperation Guidelines.

Additionally, the Forest Policies in the Caribbean Region survey will form part of the analysis of forest policies in Latin America and the Caribbean which FAO is carrying out in collaboration with regional and international organizations (CCAB-AP, UNDP, IUCN, IICA, FINNIDA, WRI, CIFOR and the EU Project on Agriculture Frontier). The policy study in selected Caribbean Countries is being carried out in concert with the European Union (EU) and follows similar exercises undertaken by FAO in Europe, the Middle East, Asia and the Pacific, Africa and in Central America in the late 80s and early 90s.

## 1.3 Definition and Description of the Forestry Sector in the Bahamas

Within the context of the Bahamian economy, the forestry sector can now best be described in terms of the goods and services being derived from the national forests as opposed to the "sustainable forest management" concept. Historically, the reverse scenario was accepted as the norm.

It was generally accepted in the past that the forestry sector focused primarily on the utilization of the natural forest resources for wood products, such as pulpwood to produce paper and sawlogs for constructional timber. Such perception was based on the long recorded history of forest exploitation in the Bahamas (Henry, 1974; Clark, 1980; Allan, 1986). Trees were felled to provide timber for housing, boat building, furniture and fuel. As early as 1650, Brasilleto (*Caesacolpinia vesicaria*), a valuable dyewood, was exported from Eleuthera Island.

It was recorded that Governor Phenney (1721-29) described the forest as comprising 'Fine Madera, Mahogany, Cedar and Pine fit for building for vessels (Craton, 1960). Other species identified included Manchineel, Prince wood, Lignum Vitae, Brown Ebony, Fustick, Senna, Gum-elemi, Guiacum, other gums and dyewoods. As a consequence of their value, these hardwoods were extensively felled, used and exported, subsequently depleting the forest resources to the extent that mature specimens are now extremely rare (Allan, 1986).

Pine forest utilization commenced in1906 when the first license was issued to exploit the resource (DLS File #645). The exploitation process continued unabated until the early 1970s, when all licenses and concessions were relinquished to the government. However, during this period this activity contributed significantly to the national economy, in terms of employment opportunities and the development of infrastructure in outline communities on the Family Islands (Maillis, pers. comm., 1997). Revenue was generated to the government from license fees and royalties for the removal of forest produce (Henry, 1974 and Allan, 1986).

The years of extensive forest resource exploitation, was considered not in unison with the concept of "sustained yield practices". According to Wardle (1997), there was a total disregard for the ecological

biodiversity of the islands due to this activity. This, compounded by the other dramatic negative effects on the local environment, brought about a change in the perspectives of the public as to the other tangible and intangible benefits the forest resources contributes to socio-economic development; with particular emphasis to environmental enhancement. These changes in local ideologies and the global perspectives regarding environmentalism have significantly contributed to the new definition and scope of the forestry sector in the Bahamas.

Beginning in the late 1980s and into the 90s, it has become generally accepted that the Bahamian natural forests have multipurpose functions. Deveaux (1997) and Maillis (1997) classified the forestry resources of the Bahamas into three categories, namely: pine forests; coppice forests; and mangrove swamps. Respondents agree that the natural forests provide in addition to commercial forestry, charcoal production and handicrafts, the reservation and protection of freshwater resources, maintenance of the hydrological cycle, soil conservation, conservation of biological diversity in the forest ecosystems, bush medicine, microclimate regulation and climate change. In addition to recreation and ecotourism development, aesthetics and natural scenery, opportunities for agricultural and agro-forestry development, and the establishment of national parks and protected areas. Today, there is no dispute among the actors and stakeholders involved directly or indirectly in the forestry sector that the above mentioned components best describe the forestry sector in the Bahamas.

The key actors in this change of perception regarding the shift in focus of the forestry sector away from commercial forestry towards "environmentalism" have been the civil society. Most notable in this regard include the Bahamas National Trust (BNT) - a quasi-government agency, the Conservation - Unit, Department of Agriculture and the local Forestry Institution (Forestry Section - Department of lands and Surveys (DLS)). The BNT has motivated the general populace towards environmental conservation. It has been instrumental in bringing to the forefront the issues regarding forest resource conservation, forest degradation due to the continuous encroachment into forest areas by other development initiatives and other land use pressures. Additionally, it has been able to use its legislative mandate to afford the declaration of National Parks and other protected areas including large areas of National Forests lands under their jurisdiction and control.

The Forestry Institution has modified its management plans to take into account the need for environmental conservation within its managed forest areas. In its MANIFESTO II document "AGENDA to and for The 21st Century" published in March 1997, the Government of the Free National Movement stated its intentions to:

> "Enact Forestry Legislation to provide for the protection and sustainable development of the forestry resources of the Bahamas."

Under this pending forestry legislation, provisions have been made for the declaration of forest areas as "Conservation Forests" due to their unique biodiversity for permanent protection. Other actors, such as the Departments of Physical Planning, Agriculture and Environmental Health, have focused more attention on the environmental aspects of their mandate, which impacts the forestry sector (Major, pers. comm., 1997). Of special significance in this regard was the recent enactment of environmental legislation "The Conservation and Protection of the Physical Landscape of the Bahamas Act, 1997" which specifically mandates the Department of Physical Planning (DPP) to regulate excavations, landfill operations, quarrying, mining and the harvesting of protected trees. The Department of Agriculture (DOA) and the Forestry Section (Department of Lands and Surveys) were involved in the drafting of this legislation, and are consulted in its implementation.

The government established the Bahamas Environment, Science and Technology Commission (BEST), and the appointment of an Ambassador for the Environment, which resides under the umbrella of the Office of the Prime Minister, is considered another key actor. This agency has directed attention on environmental protection nationally, which significantly impacts the forestry sector. Its mandate is to coordinate environmental activities between related government agencies and to act as National Focal Point for the Environment in the Bahamas. In the international arena, its mandate includes the coordination of all matters relating to the Bahamas' participation in international conventions, treaties, protocols and agreements concerning the environment.

There is evidence that suggests the forestry sector in the Bahamas is being transformed from one of forest utilization and exploitation, to that of environmental management and conservation. Which encompasses all the goods and services that can be derived from the resource, and is reflective of the general trend internationally.

## 1.4 The Bahamas Environment

### *1.4.1 Geography*

The archipelago of the Commonwealth of the Bahamas consists of 35 major islands, 700 cays and some 2,400 rocks occupying a total land surface of some 11,700 $km^2$, and dispersed over some 325,000 $km^2$ of ocean. The Commonwealth is situated on the South Western edge of the Atlantic Ocean between longitudes 72 degrees and 80 degrees west and latitudes 20 degrees and 27 degrees north. The islands are separated from Florida (USA) in the west by the Florida Straits, whilst to the south from Cuba by the Old Bahama and Nicolas Channels.

The climate is subtropical, with warm summers (May-November) and mild winters (December-April) and characterized by the Northeast Trade Winds. The archipelago lies within the North Atlantic Hurricane Belt with a risk season from June to November. Rainfall averages from 750mm to 1,500mm, with most rainfall from May to June and a marked dry season from November to April. Temperature ranges from 20 degrees Celsius in winter to 30 degrees Celsius in summer. Daylight duration varies from 10 to 14 hours in June (Department of Meteorology, 1996).

Geological Surveys reveal that the 325,000 $km^2$ of the submerged banks of the Bahamas consists of a pure calcium carbonate platform of level bedded shallow water carbonates. The islands are generally flat with no rivers but with occasional dunes and beach ridges sloping into plains and marshes. The highest point in the country is a mere 63m a.m.s.l., at Mount Alvernia, Cat Island.

Deep channels subdivide the banks and the area now exposed at or just above sea level, consists of recent coral with aragonite pellet mud in the interstices. As a consequence, there is little soil over the extensive flat coral rock. Soil is scarce because the limestone, instead of decomposing into the more loose mixture of stone, sand, silt and clay, simply dissolves away to expose fresh limestone below. The limestone is so pure that only the smallest quantity of impurities is left behind (Lamb, 1973).

### *1.4.2 Political Cycles*

The Commonwealth of the Bahamas has a parliamentary system of Government, and comprises a lower chamber House of Assembly consisting of 40 elected members. Election to the House of Assembly is by adult suffrage every five years, and is conducted by means of secret ballot at a general election. The party who wins the majority of seats in the House of Assembly at a general election, forms the Government.

General Elections were held in March 1997 in which the incumbent Free National Movement (FNM) party retained the Government by winning an overwhelming majority of seats (34 seats) in the House of Assembly, as opposed to six seats won by the official Opposition Progressive Liberal (PLP) party. This is the second consecutive term in political office for the Free National Movement Government, in which prior to their first election victory in 1992, the Opposition Progressive Liberal Party maintained the government for 25 years.

A recent Bye-Election victory in early September 1997 for a vacant seat increased the FNM Government's total seats to 35, and reduced the Opposition seats to five.

The Prime Minister, who is usually the Leader of the governing party, selects a Cabinet of no less that eight Ministers, who are officially appointed by the Governor General, from among the Members of both Houses of Parliament. The Governor General is also requested to appoint a leader of the Official Opposition.

## 1.4.3 Macro Economics of the Bahamas

### i) Country Performance

Following some slowing in 1995, the Bahamian economy expanded "at a robust pace in 1996, supported by accelerated gains in the dominant tourism sector, a substantial contribution from construction investments and relatively stable agricultural and fisheries production" (Central Bank of the Bahamas Annual Report, 1996). However, in the second quarter for 1997, the quarterly report of the Bank indicated a "moderate growth pace" in the economy, mainly supported by robust investments in the construction sector, with slowed tourism activity relative to 1996 levels.

The latest published data from the Department of Statistics estimated GDP at $3.0 billion or $11.4 thousand per head in 1993. Subsequently, additional unpublished data on percentage changes in GDP for the periods 1994 and 1995, respectively (Table 1), was prepared by the Department of Statistics, but are only tentative. The information is still to be approved by the Ministry of Finance, and is only printed here for information purposes. Note that all figures are in Bahamian Dollars. 1 B$ = 1 US$.

***Table 1: Percentage Change in GDP for the Bahamas (B$ Millions)***

| | *1994 R* | *1995 R* |
|---|---|---|
| GDP | 3,053.13 | 3,069.34 |
| Net Prop. & Entrepreneur income from abroad | -89.30 | -96.90 |
| GNP | 2,963.83 | 2,972.45 |
| Population in thousands | 273 | 278 |
| GDP per head | $11,184.00 | $11,041.00 |
| GNP per head | $10,857.00 | $10,692.00 |
| Annual Growth in GDP | 7.0% | 0.5% |
| Annual Growth in GNP | 6.7% | 0.3% |

Source: Department of Statistics

The above data suggests a slowing in economic growth in 1995 as opposed to 1994. However, 1996 showed an expansion at a robust pace in the Bahamian economy, as prescribed earlier.

The 1996/97 Government budget reflected its continued commitment to fiscal prudence, implementing institutional reform within the public sector. It also called for enhancing efficiency and administration of the revenue process, strengthening of sectoral linkages and encouragement of small-scale manufacturing and light industries. Consequently, revenue collections were boosted vis-à-vis the FY1995/96 budget, by $53.3 million to $714.9 million in FY1996/97.

Based on revenue target and expenditure commitments, published data reveal a budget deficit of $99.1 million, which exceeded the FY1995/96 deficit by $15.4 million. To facilitate the budget requirements, government borrowed some $131.0 million and drawdowns of $15.2 million on existing long-term debt facilities. Additionally government earmarked some $68.4 million for debt repayment.

### ii) Sectoral Performance

*a) Agriculture*

In 1996, indications from the agricultural sector showed a modest increased output, due primarily to an expanded poultry production, with decreased crop exports. The estimated crop production output value in 1996 was significantly higher at $67.6 million, as opposed to $43.7 million in 1995. Of the total, crop production accounted for 59.7 percent ($40.4 million).

Citrus fruits dominated the agricultural exports declined by 10.5 percent to $12.0 million, as price gains were offset by reduced quantities. However, a 12.4 percent rise in poultry production to $26.3 million for 38.8 percent of the sector's value, provided for a modest expansion. Red meat output, however, fell 1.4 percent to $0.9 million.

*b) Fisheries*

The fisheries sector recorded growth in 1996, based on export data, but was dominated by lower market prices for a marginal decrease in industry earnings. Although there was an increase in exported fisheries volume of some 11.3 percent, average prices receded by 12.5 percent influencing a 2.4 percent loss in value to $57.6 million. Crawfish accounted for 93.9 percent of all exports, but sales fell by 3.0 percent to 54.0 million, despite a volume rise of 10.6 percent to 5.5 million pounds. This was due to a fall in the average price per pound from $11.28 to $9.89 in 1995.

Sponging activity showed a steady growth reflecting a 19.9 percent gain to $1.1 million. Conch meat exports rose 14.4 percent to $0.9 million, however, queen helmet shells lost 42.8 percent to $0.7 million while other marine exports rose by 18.5 percent to $0.9 million.

*c) Construction*

There was strong recovery in the construction sector in 1996, influenced heavily by externally financed tourism and industrial related projects.

These, together with steady gains in residential investments, including the luxury second homes market, continued to exert a positive influence on economic expansion. A general summary of activities in the sector for a three-year period is shown in Table 2.

***Table 2: Construction, All Bahamas (B$'000)***

| *Activity* | | *1994* | *1995* | *1996* |
|---|---|---|---|---|
| **Building Permits** | | | | |
| | Number | 2,618 | 2,303 | 2,307 |
| | Value | 310,681 | 256,173 | 639,208 |
| | | | | |
| **Building Starts** | | | | |
| | Number | 996 | 1,040 | 1,100 |
| | Value | 175,276 | 119,256 | 186,838 |
| | Of which: | | | |
| | **1. Residential** | | | |
| | Number | 867 | 944 | 993 |
| | Value | 84,859 | 100,215 | 117,716 |
| | **2. Commercial** | | | |
| | Number | 126 | 93 | 106 |
| | Value | 89,681 | 18,151 | 68,873 |
| | **3. Public** | | | |
| | Number | 3 | 3 | 1 |
| | Value | 736 | 890 | 250 |
| Building Completions | | | | |
| | Number | 888 | 971 | 1,031 |
| | Value | 125,885 | 109,910 | 156,623 |

(Source: Dept. of Statistics, Quarterly Bulletin of Construction Statistics)

*d) Manufacturing*

Production from this sector was primarily among offshore manufacturing companies, for the export market. The sector recorded a modest advance in 1996. Salt exports increased by 30.3 percent to $18.1 million and rum and aragonite by $2.1 million each, to $5.2 million and $4.9 million, respectively.

*e) Tourism*

During 1996, a strong growth in the tourism sector was experienced, due in part to a sharp increase in cruise ship arrivals and increased competitive stopover product, which translated into increased earnings. Visitor arrivals fell by 6.0 percent in 1995 rebounded by 5.5 percent in 1996 to 3,415,858. (Table 3).

***Table 3: Visitor Arrival to the Bahamas 1993-1996***

| *Period* | *Stop -over Visitors* | *Cruise Passengers* | *Total ** | *% change* | *No of Visitor Nights* | *% change* | *Ave. Visitor Nights* |
|---|---|---|---|---|---|---|---|
| 1993 | 1,488,680 | 2,047,030 | 3,682,260 | (0.2) | 8,585,030 | 5.7 | 5.8 |
| 1994 | 1,516,035 | 1,805,607 | 3,446,376 | (6.4) | 8,846,530 | 3.0 | 5.8 |
| 1995 | 1,598,135 | 1,543,495 | 3,239,155 | (6.0) | 9,031,455 | 2.1 | 5.7 |
| 1996 | 1,633,015 | 1,685,668 | 3,415,858 | 5.5 | 9,465,385 | 4.8 | 5.8 |

(Source: Ministry of Tourism) (* includes Day/Transit Visitors)

Growth in tourist spending measured 1.0 percent in 1995, strengthened to 7.7 percent for an estimated $1.45 billion in 1996, with capital gains experienced for both stopover and cruise markets. The upgraded facilities translated into price and revenue gains further enhanced the competitiveness of the tourism sector. Room occupancy rates rose from 66.4 percent to 67.6 percent in 1996. This, in combination with an increase in the average length of visitor stay, from 6.1 to 6.3 days, significantly boosted room revenues in the Bahamas.

*f) Trade and Payments*

The Central Bank of the Bahamas Annual Report (1996) indicated a widening of the external current account deficit by some 40 percent to $207.7 million relative to $147.0 million in 1995 (Table 4).

***Table 4: Bahamas Balance of Payments Summary (B$ Millions)***

| | | *1994* | *1995* | *1996* |
|---|---|---|---|---|
| **I) Current Account (i+ii+iii)** | | (33.6) | (147.0) | (207.7) |
| i) | Merchandise Trade (net) | (848.8) | (979.5) | (1,059.9) |
| | Exports | 163.7 | 175.9 | 201.7 |
| | Imports | (1,012.5) | (1,155.4) | (1,261.6) |
| ii) | Services (net) | 799.5 | 827.1 | 856.9 |
| | Travel | ,134.1 | 1,133.3 | 1,218.3 |
| | Investment Income | (89.3) | (97.0) | (90.4) |
| | Other | (245.2) | (209.1) | (271.0) |
| iii) | Transfers | 15.7 | 5.4 | (4.7) |
| | Private | (13.4) | (15.3) | (24.7) |
| | Government | 29.1 | 20.7 | 19.9 |
| **II) Capital Account (i+ii)** | | 77.1 | 103.7 | 121.4 |
| i) | Long-term Capital Flows (net) | 66.0 | 86.3 | 107.2 |
| | Private | 87.5 | 115.1 | 138.3 |
| | Public | (21.5) | (28.8) | (31.1) |
| ii) | Short-term Capital Flows (net) | 11.1 | 17.4 | 14.2 |
| **III) Net Errors and Omissions** | | (34.1) | 40.2 | 78.8 |
| **IV) Changes in External Reserves** ( ) = increase | | (9.4) | (3.1) | (7.6) |

Source: The Central Bank of The Bahamas, 1996

This was explained by a strong domestic demand, which led to 9.2 percent growth in imports. The increased imports were reflected in increased costs of petroleum products, up 24 percent ($37.6 million); also by increased costs in manufactured goods, especially, equipment, construction materials and transportation items.

There was a $29.8 million (3.6 percent) service account gain to $856.9 million and was dominated by substantial travel inflows (see Table 4). A solid $112.5 million rise in tourism earnings countered the $27.4 million hike in travel and other spending by Bahamians overseas, to an $85.1 million (7.5 percent) increase in travel surplus to $1,218.3 million. Although this helped increase the surplus on services, it was not sufficient to offset the increased merchandise deficit.

The Current account deficit, as in recent years, was almost completely financed by sustained private capital inflows, (which featured a strengthened surplus position); and which was directed to tourism, industrial and manufacturing activities.

*g) Public Finance*

Regarding public finance, government's revenue benefited from an improved economy, however, stronger spending, particularly on goods and services, reflected a larger overall deficit in FY1995/96. For the first 11 months of FY 1996/97, government's budgetary position showed an overall deficit of $100.3 million, as opposed to a modest surplus of $6.5 million in the year earlier period (Central Bank of Bahamas Quarterly Economic Review, June 1997). The June 1997 report further indicated the contributing factors being hikes in consumption of goods and services and personal emoluments of 7.5 percent and 18.9 percent respectively, alongside a 63.8 percent boost in capital expenditure, amounting to some $720.6 million.

Revenue collection for the first 11 months of FY1996/97 declined marginally by 0.9 percent, due in part to a drop of 3.6 percent in import duties. Budget financing included domestic borrowing of $88.6 million and access to $25.8 million in net external resources. Of the $620.4 million in total revenue, stated the Report, approximately 90.3 percent represented tax receipts, which registered a "marginal" decrease to $560.2 million.

However, there were strong gains in property tax, export levies and general stamp taxes to $24.4 million, $8.8 million and $51.1 million, respectively. Non-tax income posted "moderate growth" of $1.7 million to $59.1 million and constituted 9.5 percent of total collections. In particular, property income arising from rents, royalties, etc, generated an additional $6.6 million to total $18.6 million.

*h) External Debt*

In 1996, the outstanding debt declined by 11.5 percent, the component relating to direct Government debt by 14 percent, while the debt to public corporations fell by almost 10 percent. The increase in debt service costs, up by 9 percent, related to direct government debt.

Consequently, the direct charge on Government rose by 5.9 percent to $1,317.3 million and guaranteed borrowings of the public corporation by 0.3 percent placing the National Debt higher by 4.8 percent at $1,632.6 million, for the quarter ending June 1997 (Central Bank of the Bahamas Quarterly Economic Review, June 1997).

***Table 5: Average Annual Percentage Changes in Retail Price Index, New Providence – Bahamas***

| *Group* | *Weight* | *1994* | *1995* | *1996* |
|---|---|---|---|---|
| Food & Beverage | 138.3 | (0.5) | 2.0 | 2.6 |
| Clothing & Footwear | 58.9 | 2.6 | 0.2 | 2.7 |
| Housing | 328.2 | 0.9 | 1.1 | 1.9 |
| Furniture & Household Operation | 88.7 | 1.9 | 3.1 | 1.2 |
| Medical Care & Health | 44.1 | 6.2 | 3.5 | 2.1 |
| Transportation & Communication | 148.4 | 2.2 | 4.3 | 0.4 |
| Recreation, Entertainment & Services | 48.7 | 0.2 | - | 0.8 |
| Education | 53.1 | 0.6 | 0.6 | (0.1) |
| Other Goods & Services | 91.6 | 1.6 | 1.0 | (0.2) |
| ALL ITEMS | 1,000.0 | 1.3 | 2.1 | 1.5 |

(Source: Department of Statistics)

*i) Prices*

The number of items in the New Providence basket in 1996 increased from 234 to 253 and from 166 to 543 in Grand Bahama Island.

More emphasis was being placed on housing, other goods and services, medical care and health categories, where their weights were raised by 72.2 points, 62.6 points and 11.1 points respectively. The largest decreases were recorded for the food and beverages (33.7 points), transport and communications (72.6 points) and education (21.9 points) groups (see Table 5).

Overall, the rate of inflation in the Bahamas slowed to 1.5 percent in 1996 from 2.1 percent in 1995 (Table 5), which continued to mirror price trends with the United States, whom it has strong trading links

*j) Unemployment*

The unemployment rate decreased from 13.3 percent in 1994 to 11.1 percent in 1995, a decrease of some 2.2 percent over the previous year. Consequently, employment rose from 124,600 in 1994 to 127,155 in 1995 (The Bahamas in Figures, 1996). Job increases were mainly in the services sector (mainly tourism) and construction sector.

### *1.4.4 The Social Dimensions of the Bahamian Economy*

Below is a tabular format for social indicators for the Bahamian economy. Those indicators highlighted with an asterisk were taken from the "The Bahamas in Figures, 1996" and "Selected Economic and Social Indicators, 1993" published by the Department of Statistics. Otherwise, all other data were obtained from the "Human Development Report, 1997" published by UNDP.

The "Human Development Report, 1997" identified the Bahamas as having a HDI rank of 28, and classified as a country with a High Human Development.

***Table 6: Human and Social Development Indicators for the Bahamas – 1994***

| | |
|---|---|
| **Human Development Index** | |
| Life expectancy at birth (years) | 72.9 |
| Adult literacy rate (%) | 98.1 |
| Gross enrolment ratio (%) | 75.0 |
| Real GDP per capita ($) | 15,875 |
| Adjusted real GDP per capita ($) | 6,036 |
| Life expectancy index | 0.80 |
| Education index | 0.90 |
| GDP index | 0.98 |
| Human Development Index (HDI) | 0.894 |
| Real GDP per capita rank minus HDI rank | 0 |
| **Gender-related Development Index** | |
| Gender-related development index (GDI) rank | 18 |
| Life expectancy at birth (years) | |
| Female | 76.5 |
| Male | 70.1 |
| Adult literacy rate (%) | |
| Female | 97.7 |
| Male | 98.4 |
| Combined primary, secondary & tertiary gross enrolment ratio (%) | |
| Female | 77.0 |
| Male | 73.0 |
| Earned income share (%) | |
| Female | 39.5 |

| | |
|---|---|
| Male | 60.5 |
| GDI value | 0.880 |
| HDI rank minus GDI rank | 10 |
| **Gender Empowerment Measure** | |
| Gender empowerment measure (GEM) rank | 19 |
| Seats in Parliament (% women) | 10.8 |
| Administrators and managers (% women) | 26.3 |
| Professional and technical workers (% women) | 56.9 |
| Earned income share (% to women) | 39.0 |
| GEM value | 0.544 |
| **Women and Political and Economic Participation** | |
| Administrators and managers | |
| Female (%) (1990) | 26.0 |
| Female as % of male (1990) | 36.0 |
| Professional and technical workers | |
| Female (%) (1990) | 57.0 |
| Female as % of male (1990) | 130.0 |
| Clerical and sales workers | |
| Female (%) (1990) | 70.0 |
| Female as % of male (1990) | 235.0 |
| Service workers | |
| Female (%) (1990) | 62.0 |
| Female as % of male (1990) | 162.0 |
| Women in Government | |
| Total (%) (1995) | 34.0 |
| At ministerial level (%) (1995) | 20.0 |
| At sub-ministerial level (%) (1995) | 38.0 |
| **Child Survival and Development** | |
| Pregnant women aged 15 – 49 with anaemia (%) 1975-91 | 12.0 |
| Infant mortality rate (per 1,000 live births) (1994) | 13.0 |
| Under-five mortality rate (per 1,000 live births) (1995) | 28.0 |
| Total No. of births (1994) * | 6,104 |
| Birth Rate (%) (1994) * | 22.3 |
| Teen Pregnancy (%) (1990) * | 0.15 |
| **Health Profile** | |
| AIDS cases (per 100,000 people) (1995) | 141.8 |
| Cigarette consumption (%) * | |
| Female (1988/89) | 18.5 |
| Male (1988/89) | 3.9 |
| Alcohol consumption (%) * | |
| Female (1988/89) | 40.2 |
| Male(1988/89) | 10.4 |
| Doctors (per 1,000 population) (1992) * | 1.4 |
| Nurses (registered- per 1,000 population) (1992) * | 2.4 |
| Hospital Beds (per 1,000 population) (1992) * | 4.0 |
| Hospitals (Number) (1992) * | 5 |
| Disabled population (1990) * | 6,068 |
| Major causes of death (%)(1991) * | |
| Heart disease | 42.0 |
| Malignant Neoplasm(Cancer) | 35.0 |
| Cerebrovascular Disease | 13.0 |
| Pneumonia | 10.0 |
| **Education Imbalances** | |
| Compulsory education (duration in years) | 10 |
| Enrolment (Numbers) (1992) * | |

| | |
|---|---|
| Primary and all age* | 36,175 |
| Secondary * | 23,883 |
| Tertiary (combined) (1987) * | 6,248 |
| Tertiary students abroad (as % of those at home) (1989-93) | 41.1 |
| Public expenditure: | |
| Education (as % of GNP) (1993-94) | 3.9 |
| Education (as % of total government expenditure – 1992-94) | 16.3 |
| **Employment** | |
| Total Labour Force (1994) * | 138,700 |
| Labour force (as % of total population) (1990) | 49.0 |
| Women's share of adult labour force (age 15 & above) | |
| 1970 | 40.0 |
| 1971 | 46.0 |
| Percentage of labour force in: | |
| Agriculture: | |
| 1960 | 20.0 |
| 1961 | 5.0 |
| Industry: | |
| 1960 | 25.0 |
| 1061 | 15.0 |
| Services: | |
| 1960 | 55.0 |
| 1961 | 79.0 |
| **Communication Profile - 1994** | |
| Radios (per 1,000 people) (1994) | 735 |
| Televisions (per 100 people) (1994) | 24 |
| Printing & writing paper consumed (metric tons per 1,000 people) | 8.0 |
| Main telephone lines (per 100 people) | 28.3 |
| International telephone calls (minutes per person) | 128.0 |
| **Social Investment** | |
| Percentage of central government expenditure on: | |
| Social security & welfare: | |
| 1980 | 6.7 |
| 1992-95 | 4.1 |
| Housing & community amenities: | |
| 1980 | 0.1 |
| 1992-95 | 1.3 |
| Health: | |
| 1980 | 13.8 |
| 1992-95 | 14.6 |
| Education: | |
| 1980 | 20.8 |
| 1992-95 | 18.7 |
| **Demographic Profile** | |
| Estimated population (millions) | |
| 1960 | 0.1 |
| 1994 | 0.3 |
| 2000 | 0.3 |
| Annual population growth rate (%) | |
| 1960-1994 | 2.7 |
| 1994-2000 | 1.6 |
| Population doubling date (at current growth rate) (1994) | 2036 |
| Crude birth rate (1994) | 18.0 |
| Birth rate (1994) * | 22.3 |
| Crude death rate (1994) | 4.9 |
| Death rate (1994) * | 5.6 |

| | |
|---|---|
| Total fertility rate (1994) | 1.9 |
| Contraceptive prevalence rate, any method (%) (1987-94) | 62.0 |

### *1.4.5 Sustainable Development Strategies for the Bahamas*

The Government of the Bahamas (GOB) recognizes the significance of the environment to the national economy and to the economic well being of future generations. To this end, the government has incorporated the protection and enhancement of the environment and its biological resources into the national development planning process.

Further, the GOB has committed itself to the principle of "sustainable development" as part of its endorsement and signatory to the Convention on Biological Diversity (CBD) and AGENDA 21. In this regard, it has agreed to develop and implement national strategies and action plans. The newly created Bahamas Environment, Science and Technology Commission (BEST), situated in the Office of the Prime Minister, has been given the task to develop for the Bahamas a National Biodiversity Strategy and Action Plan. BEST appointed a special Task Force comprising senior officers of relevant government and private agencies to meet, discuss and develop the strategy.

The overall objective of the strategy and Action Plan is to provide an overview of the role of biodiversity in the social and economic well being of the Bahamas, and to ensure that biodiversity is conserved as economic development continues. To achieve this objective, the strategy inquired on the following: What is biological diversity? Is biodiversity important to the financial and social well being of the nation? Is biodiversity threatened and what threatens it? Does biodiversity contribute towards economic and social sustainability? What must the Bahamas do to achieve its goal of sustainability?

Both Strategic and Action Plan recommendations are being presented as a response to the overall vision and objectives in moving towards the road to sustainability for the Bahamas.

Complementary to the development of Biodiversity Strategy and Action Plan, BEST also facilitated the Bahamas Biodiversity Data Management Project (BBDMP). The primary objective of this project was to:

Prepare a National Biodiversity Data Management Plan that would provide for the efficient management and application of data and information in support of natural resource policy development, biodiversity conservation and the implementation of CBD.

It is expected that the sustainable development strategies currently being prepared, will take into consideration the need to assess environmental indicators as a measure of achieving sustainable development, in concert with the traditional macro-economic indicators.

# 2. CURRENT FORESTRY POLICIES

## 2.1 National Forestry Policy

The last major initiative at a comprehensive National Forestry Policy for the Commonwealth of the Bahamas took place in 1985, and based on a draft forest policy document prepared in 1953. At that time the GOB recognized the need for the sustainable management of the country's forest resources. In this regard, technical assistance (TCP/BHA/4401(F) was sought from the FAO; with financial assistance from the Inter-American Development Bank (IDB) (ACTN/SF-2399-B4) to execute The Forestry Development Project (UTF/BHA/003) for the Bahamas. A product of this project was a Forest Management Plan, 1986, which included a draft National Forestry Policy.

A process of consultation between relevant government agencies took place in early 1985 regarding the draft Forestry Legislation, which incorporated aspects of the forest policy statement. For which there was general agreement on the provisions in the draft statement.

There were public releases to the local radio, television station and newspapers regarding aspects of the Forestry Development Project, and forest policy.

The draft National Forestry Policy Statement was submitted for consideration to the GOB in 1986. To date, the GOB has incorporated Forestry Policy Statement provisions into the draft Forestry Legislation awaiting Cabinet's consideration. The Forestry Institution regarded the forest policy statement as its mandate for the forestry sector, and thus carried out its responsibilities based on that premise. However, the general public was not afforded the opportunity to make a contribution towards the process of forest policy formulation.

The Government's MANEFESTO II - 1997 document and the "Speech From the Throne", 9th April 1997, makes reference to the enactment of Forestry Legislation which incorporates policy statement provisions. The only other publication in which the policy statement can be obtained is in the original document titled "Forest Management Plan for the Pine Forest of the Bahamas, 1986".

## 2.2 Statement of Forestry Policy

The draft National Forestry Policy submitted to the GOB stated the following:

> The Government of the Commonwealth of the Bahamas recognizes the importance of Forestry as a vital facet of land use and gives its fullest support to forest conservation, management and development in the national interest.
>
> The Forestry Section of the Department of Lands and Surveys is the institution responsible for managing the forest estate and is accountable to the Government for the stewardship of the legally constituted forest estate and for expenditure of public funds in exercising this function. The Forestry Section will recommend the licensing and promotion of sound forest development proposals.
>
> The Government recognizes the need to establish a legally constituted forest estate to be managed in the national interest and require that the Forestry Section:
>
> - Soundly manage the designated forest estate to increase the yields of sawlogs and other forest products on a sustained basis. As part of this management process, to provide fire protection and to develop management systems compatible with the conservation and protection of fresh groundwater resources;
> - Develop sustained wood resources for the promotion of local forest industries, accepting that initially, due to resources limitations, such enterprises may be small in scale;
> - Manage designated forest conservation areas for amenities, recreation or protection of rare, fragile or threatened ecological associations;
> - Encourage tree planting or forest development on suitable private lands;
> - Manage and sustain a comprehensive forest research programme to provide a sound technical base to improve management and development, and in particular identify silvicultural data directed toward improving the financial yields of species important to the national economy; and
> - Define and periodically revise forest royalty of stumpage rates to ensure that the Government derives a reasonable return for licensed rights.
>
> (Forest Management Plan, 1986)

## 2.3 Specific Forestry Policies

Below is a brief description of the most significant existing forestry policies in the Bahamas.

### *2.3.1 Forest Policy Statement*

**a) Character of the Document**

This statement describes the general purpose for the use of trees and forests in the Bahamas. It follows a process of consultation as prescribed in Section 2.1, and part of a Forestry Development Project for the Bahamas.

**b) Policy Originators**

The originators of the policy statement included the senior technical level of the DLS (Forestry Section). In concert with policy makers within the Ministry of National Security (the Ministry in which the forestry institution resided in 1986), along with a Senior Forestry Advisor of FAO.

**c) Policy Makers Intention**

The policy makers' intention of the forest policy statement was to ensure the establishment of a legally constituted forest estate to be managed on a sustained basis for forest produce. To provide fire protection and provide compatible management systems in conserving and protecting ground water resources. Further, to manage the forest for research purposes and protection of biological diversity.

To achieve these objectives, a forest management plan was prepared which prescribes the activities to be carried out for sustainable forestry management, and to derive other goods and services that the natural forest can contribute to the overall socio-economic development of the Bahamas.

**d) Issue (problem) definition**

An FAO Forestry Advisor in 1986, identified the overriding problem with the forestry sector in the Bahamas to be the lack of an appropriate policy framework to effectively carry out sustainable forestry conservation and management. This has been compounded by the lack of a comprehensive legislative mechanism to provide the legal basis for the institution to carry out its mandate.

**e) Process of Policy formulation**

The process that took place in the formulation of the Forestry Policy Statement involved an initial overview of pertinent forestry issues (agenda setting) by the FAO Forestry Advisor to the Bahamas in 1985, in concert with senior technical officers of the Forestry Institution.

The list of issues were placed on the agenda for discussions with senior policy makers (including the Permanent Secretary and Minister with responsibility for Forestry) and the Forestry Advisor. The list of issues included: Forestry Development Fund, Forest Law, Forestry in Land Use, Forestry as a facet of Conservation, Forest Economics, Licensing and local Forest Industries, and Forest Products Royalty. Following discussions, the final draft of the forest policy statement was agreed upon.

**f) Policy analysis**

The process of policy analysis was a subjective one, whereby the issues presented were discussed based on what was perceived as priorities to the forest institution and its ability to implement them.

### g) Policy implementation and monitoring

The policy statement did not provide provisions or indicate what mechanism(s) the forestry institution should employ to ensure effective implementation and monitoring of the activities to be carried out.

Total discretion was left to the forestry institution (Forestry Section - DLS) to determine which activities it can best carry out given the inherent and apparent constraints and limitations it faced. Most notably being the inadequate financial and human resources. The staff complement of the forest institution, at that time, comprised one expatriate Forest Officer, two expatriate Foresters, two Bahamian Forester trainees, and three forest workers.

### h) Policy legitimization

The policy statement provisions are imbedded in the draft forestry legislation which is in the process of being considered by Cabinet. It is anticipated that the legislation would become law thereby legitimizing the policy.

### i) Main groups affected by the policy

The policy statement has affected the forestry institution in its ability to carry out its mandate, to the extent that there is a guide in place as to what is expected from the institution, in terms of products. The implications to future land use development and, in particular, agricultural development, is most significant, as the legitimization of the policy would alienate considerable acreage of lands potentially suited to agriculture, industry and other developments.

### j) Policy scope

The forest policy statement has local, national and regional implications. Within the local and national context, the policy makes provision to protect considerable acreage of pristine natural pine and hardwood forest for their biodiversity capabilities. Additionally, forest areas with commercial viability can be exploited sustainably. Local communities, who derive their livelihood from the forest, can benefit from a well-managed and protected resource.

Regionally, the policy would address pertinent environmental issues involving uncontrolled deforestation of natural forest and loss of biodiversity. The negative impacts of climate change and global warming, as a result of forest degradation, would be reduced or averted.

### k) Linkages with overall macro-policies

It was anticipated that once small-scale forestry industries were established in the Bahamas, the forestry sector would begin to make its contribution to overall socio-economic development. To be achieved by generating employment opportunities, import substitution of forest products and revenue generation to the GOB via license agreements and royalty payments.

Hence linkages would be established with overall government planning and macro-policies. To illustrate the GOB intentions in this regard, its published National Economic Investment Policy Document, 1994 stated the following in its preamble:

> ...the National Investment Policy is designed to support an investment friendly climate...encourage the exploitation of our national resources in an environmentally sound and sustainable manner...and generally foster the economic growth and development of the Bahamas.

### l) Mechanisms for identifying/considering linkages and coordination

The Office of the Prime Minister (OPM) is directly responsible for the coordination of all sectors of the Bahamian economy and overall macro-economic planning, and is headed by the Prime Minister. The main objective is the formulation and implementation of policies to strengthen/rehabilitate existing activities (such as forestry, agriculture, tourism, fisheries, etc).

The Ministry of Finance and Planning (MFP) also has a role to play in coordination of sectors of the economy in "ensuring overall consistency between policies, strategies and programmes of other ministries, and national development priorities" (Mission Statement - MFP, 1994).

## *2.3.2 National Forestry Development Programme (NFP) 1997-2000*

### a) Character of the Document

The document is a comprehensive forestry development programme of action for the Bahamas into the 21st Century. It is divided into four explicit categories and includes Institutional Development, Resource Management, Sustainable Utilization and Assessment and Monitoring.

### b) Policy originators

The policy originator for this programme of action was the Forestry Officer in the Forestry Section - DLS. The programme was agreed and accepted by the policy makers in the OPM.

### c) Policy makers intentions

Overall, the primary intention of this policy is to provide a clear framework and plan of action for the future conservation and sustainable development of the natural forest resources of the Bahamas, leading into the 21st Century.

### d) Issue (problem) definition

It was identified by the Forestry Institution that there was not a clear programme of action for the sustainable forestry development, which incorporated the prescriptions and actions from Agenda 21 and the Forest Principles for sustainable development.

### e) Process of policy formulation

A critical analysis and review was made of the previous forestry development programme, to determine what necessary amendments were required to bring the action programme more up to date and in line with international forestry initiatives for sustainable development. The Forestry Officer who heads the Forestry Institution in the Bahamas, initiated this task, which was then forwarded to the Deputy Director of the DLS, who has overall administrative responsibilities for the Department.

Following concurrence with the administrative officer, the programme was forwarded to the Permanent Secretary/OPM for review. The programme as drafted, was accepted by the policy makers at the OPM who agreed to provide funds for its initial implementation.

### f) Policy analysis

A review of the principles of Agenda 21, particularly those directly related to Forestry (Chapter 11), the Forestry Principles of UNCED, and the Programme of Action for Small Island States was carried out by the Forestry Officer in the Bahamas, with a view to identify gaps and deficiencies in the existing forestry programme in the country. Those principles, actions, and activities that were best applicable to, and compatible with, the present political, social and economic climate of the Bahamas were selected for incorporation within the NFP.

### g) Policy implementation and monitoring

The GOB in its annual budget exercise 1997/98 agreed to support the NFP by the allocation of a budget of some B$85,000.00 for forestry development within the DLS' overall budget, to facilitate the implementation of this policy. Additionally, a new staff member was recruited to enhance the existing staff complement from two to three.

However, the allocation of financial and human resources was seen as inadequate to effectively implement the NFP. In this regard, only a limited number of activities of the NFP have been initiated due to the constraints.

**h) Policy legitimization**

It is anticipated that the enactment of comprehensive forestry legislation would legally legitimize the NFP process. However, it is generally accepted that in the interim, Government would continue to support the NFP via sustained funding and human resource development.

**i) Main groups affected by policy**

The main groups include the forestry institution and other government agencies such as DOA, DPP, Water and Sewerage Corporation, BEST Commission, and NGOs. In addition to the rural communities associated with the national forest areas, who derive goods and services therefrom.

**j) Policy scope**

The policy (NFP) covers the main components of the principles of AGENDA 21 relative to the forestry sector, the Forest Principles, and Convention on Biological Diversity. A mechanism is in place to make any necessary adjustments to the NFP to include any recent international and regional initiatives in forestry development and conservation, such as the recent recommendations and conclusions from the IPF meetings of CSD, the COFO of the FAO, and the LACFC conclusions.

**k) Linkages with overall Macro-policies**

The same as in Section 2.3.1(k)

**l) Mechanism for identifying/considering linkages and coordination**

The same as in Section 2.3.1(l)

## *2.3.3 Draft Forestry Legislation, 1996*

**a) Character of the Document**

The draft forestry legislation "A Bill for An Act To Provide For The Conservation And Control Of Forests, 1996" has the objective of providing a legal framework for the long-term management of forests in the Bahamas. This is to be achieved through the establishment of a Governmental forestry agency, a permanent forest estate subject to scientific management, the licensing of timber harvesting activities and for various administrative aspects including regulations, powers of forest officers and offences.

**b) Policy originators**

The originators of this policy between 1985 through 1987 included the FAO Senior Forestry Advisor to the Bahamas, FAO Legal Consultant, senior Forestry Officers, policy makers at the OPM, and the Legal Draftsman at the Office of the Attorney General. A consultation process took place among relevant stakeholder government agencies regarding the initial drafting of the legislation.

**c) Policy makers intentions**

The overall intention of the policy is to provide a legal framework by which the forestry institution can carry out its functions as mandated. Thereby ensuring that the forest resources of the Bahamas are being developed in a sustained manner, and in unison with national priorities and international initiatives and obligations.

**d) Issue (problem) definition**

Forestry Advisors to the Bahamas identified the need to provide an appropriate legal framework by which the forestry institution can effectively carry out its mandate. The lack of this mechanism critically hampered the Forestry Section - DLS in this regard, particularly with respect to the prosecution of individuals who cause damages to the natural forest resources.

**e) Process of policy formulation**

The Forest Management Plan for the forest resources of the Bahamas, being a product of the Forestry Development Project, recommended the following regarding forestry legislation "The proposed Forest Act should be drafted and enacted as soon as possible..." (Allan, 1986).

In this regard, the GOB requested technical assistance from FAO to assist the legal draftsman in defining the Forest Act. A FAO legislation Consultant was contracted by the GOB in 1987 who prepared a draft Forestry Act and a proposal for forestry legislation for the Ministry (Cabinet Office), in consultation with the Department of Legal Affairs. The draft was also sent to FAO Forestry and Legislation offices for review and revision.

The FAO Consultant discussed the revised draft with government officials individually and at an inter-ministerial meeting. At the conclusion of the consultancy, a Draft Forestry Act, Draft Forestry Regulations and a schedule of forest reserves, protected forests and conservation forests with accompanied maps were prepared.

In 1996, the GOB requested the forestry institution to review the 1987 draft forestry legislation in consultation with the newly created National Land Use Committee (NLUC) of the BEST Commission. Based on this consultative process, the draft legislation was amended to include the new "environmental conservation ethic" and mode of the country, in addition to the incorporation of additional areas of hardwood coppice forests in the schedules for reservation purposes. The Department of Legal Affairs was then asked to make the necessary legal amendments to the Bill (A Bill for An Act To Provide For The Conservation And Control Of Forests, 1996). Currently the Bill awaits Government's consideration prior to it being presented to Parliament for debate and eventual enactment.

**f) Policy analysis**

The 'skeleton' of the draft forestry legislation was prepared based on an overview and analysis of forestry legislation in the English Speaking Caribbean, and other Commonwealth Countries. A refinement was made to this skeleton by the FAO Consultant based in part on a FAO Workshop on Forestry, Wildlife and National Parks Policy and Legislation held in St. Lucia in July 1987.

The substance of the draft forestry legislation was finalized based on the most significant needs, priorities, and issues discussed with senior forestry officials, Government agency representatives, Department of Legal Affairs personnel and the FAO Consultant.

**g) Policy implementation and monitoring**

Despite the non-enactment of the draft legislation, the Forestry Section commenced the implementation of some of the legislative provisions since 1987, having been provided with a budget, a small staff complement and equipment.

**h) Policy legitimization**

It is anticipated that the GOB would enact the comprehensive forestry legislation to legitimize the policy.

**i) Main groups affected by policy**

Same as Sections 2.3.1(i) and 2.3.2(i)

j) **Policy scope**

Same as Sections 2.3.1(j) and 2.3.2(j)

k) **Linkages with overall Macro-policies**

Same as Sections 2.3.1(k) and 2.3.2(k)

l) **Mechanism for identifying/considering linkages and coordination**

Same as Sections 2.3.1(l) and 2.3.2(l)

# 3. EMERGING AND CURRENT ISSUES AND PROBLEMS

## 3.1 The Future of Forestry in the Bahamas

According to Hammerton (1997) "the central issue is the future of Forestry in the Bahamas...including pine, coppice, casuarina and mangrove forests, and all types of forest resources." He further indicated that in the absence of a Forestry Act and the establishment of a properly staffed Forestry Department, the Bahamas would be unable to effectively manage any of its forest resources to generate income while ensuring long-term sustainability. With only a limited number of professional people dedicated to the forestry sector, the statements of forest policy would become only words on paper, as opposed to a real situation (Deveaux, pers. Comm., 1997).

There have been arguments in favour of the existing forestry institution being relocated within the Ministry of Agriculture in order to ensure more attention and focus on forestry needs and activities. This debate has resulted in conflicts between the DLS and the DOA as to which agency is better suited to address forestry matters. The DLS is of the view that the DOA does not have the protection of forests as a priority, but rather their intent is to clear fell the forests for agricultural purposes. In support of this view, Maillis (1997) indicated that Forestry should remain under the DLS and not be under a competing agency, in this case DOA. He further argues that Agriculturists would prefer to see the forest yield to agriculture. On the other hand, the DOA argues that DLS has paid little attention to forestry needs and that forestry has not been allowed to develop to its maximum potential, and hence the need to relocate it under agriculture. In support of the latter position, Deveaux (1997) argues that in many of the 180 or so countries that FAO represents, agriculture, fisheries and forestry all fall under the same Ministry, where forestry is an integral part of agriculture.

It appears that the state of affairs between the DLS and DOA is entirely the result of the perceived conflict and disharmony over the years. Where forestry was not allowed to develop, as people were more interested in territory to the extent that forestry was neglected (Deveaux, per, comm., 1997). Further, that the past history of licensing created a fear in the country, where, rather than develop the forest estate, forestry was allowed to deteriorate as opposed to learning from past mistakes.

Maillis (1997) concludes that there has to be checks and balances, in which historically DLS has always looked after government property in terms of effective management of Crown Lands and forests. To hand over forestry to agriculture is like "putting the cat to watch the fish." What forestry needs, is proper funding and staff to effectively undertake its mandate.

Other respondents emphasized the point that the lack of proper management of the natural resource, due to a weak forestry institution, continues to result in permanent losses in natural forest cover due to wildfires, agricultural expansion, illegal encroachments on forestlands, etc. Maillis (1997) also supports this view. A former Director of the Department of Lands and Surveys made the following comments "in order to establish and manage the legally constituted forest estate, adequate and necessary funding must be provided to set up and staff a forestry organization to carry out the objectives" (Choeng, pers, comm., 1997). According to Deveaux (1997), one cannot have a legally constituted forest estate within the DLS. What is needed is for forestry to become a single Department or a part of a Ministry, in order

for forestry to effectively contribute to socio-economic development of the country. However, Maillis (1997) argues that the Bahamas may need a similar set up to that of the US Fish and Wildlife Service, to remove the anomaly of conservation responsibilities being under both agriculture and forestry.

Consequently, it is viewed that there are great monetary losses and opportunity costs including other intangible benefits, due to lack of effective forest resource management. In a report by Soares (1990), he estimated that the total monetary losses due to wildfires amounted to some $1,575,400, annually, throughout the pine forest islands of the Bahamas. Successive wildfires in the pine forests, due to fuel build-up and overgrown forest roads, have resulted in destruction of old snag trees the natural habitat for swallows (Maillis, pers. comm., 1997).

According to Carey (1997), anything that involves the control of large acreage of land has very serious political implications. Further, he suspects that a reason for the Forestry Act not being enacted to date is due to the perceived need of the policy makers to meticulously scrutinize any Act or policy that deals with the administration of government-controlled lands.

Forestry sector studies have been carried out by Henry (1974), Little et. al., (1974), Clark (1980), Allan (1986), Soares (1990) and Russell (1995) to address the issue of forestry development, including appropriate institutional arrangements. Recommendations have been made in each study, relative to institutional arrangements. In terms of programmes and planning, a forestry management plan was prepared in 1986 for effect sustainable forestry development. However, due to resource constraints many programmes have not eventuated.

The forestry institution, when contacted, advised that the issue of the future of forestry can only be addressed at the Ministerial/Cabinet level of government. The issue will likely affect the future development of the agricultural and forestry sectors, especially if the decision is made to relocate the forestry institution within the Ministry of Agriculture. There have been unconfirmed reports of the forestry institution being amalgamated into a new Ministry for the Environment, along with other environmental agencies. Thus, it would appear that some options/alternatives to address this issue is in effect "in the pipeline".

## 3.2 Public education and awareness

This issue has been identified as very crucial to the survival of the natural forest resources of the country. Many persons contacted felt that the average person does not understand the term forestry and what it entails. According to Maillis (1997), the current generation of Bahamians, do not know anything about forestry, nor do they appreciate the use trees could be put to and the benefits that can be derived. According to a former Director of the Department of Lands and Surveys "the public has no real appreciation of forestry and what it is all about...nor do they see the need to spend public funds on trees to preserve them." (Cheong, pers, comm., 1997).

Consequently, there is conflict between communities who depend on the forest for their livelihoods and the agencies in government responsible for natural resource conservation and management. Respondents agree that the future sustainable development of the natural forest resources and associated ecosystems are at stake, in addition to the quality of life of communities. Maillis (1997) argues that there is bound to be a lot of emotional reactions to any large scale forest resource exploitation in the future and hence the need for clear policies to prevent such type of exploitation, complemented by education of the masses.

Due to the lack of education and awareness of forestry and resource conservation and management, respondents agree that there is potential for considerable costs to the environment due to resource fragmentation. Loss of biodiversity within forest ecosystems is the end result (Johnson, pers. comm., 1997). When the general populace is uneducated or unaware of the tangible or intangible benefits that can be derived from our natural forests, the resource will be taken for granted and abused.

Public education and awareness has become an issue because on a daily basis there is evidence of forest resource depletion and destruction, caused by the high incidence of forest fires adjacent to nearby communities particularly during the dry season. The causes in many cases are due to negligence from farmers, boar hunters and other acts of incendarism. Currently, the phenomenon is

compounded by the lack of appreciation of the resource. The degradation of the physical landscape of the hillsides on New Providence Island, in particular, warranted the enactment of environmental legislation to control and monitor excavations and removal of protected trees (Major, pers. comm., 1997).

While there has been no specific analysis on this issue, the BNT, along with the DOA, DLS (Forestry Section) and DPP, have been directed by the OPM to organize a public awareness programme. The prime objective, to sensitize the population regarding the preservation of specific protected trees and the environment in general. To date, the programme has not eventuated. According to Maillis (1997), what is needed is public education on the past history of forest exploitation and the potential opportunities attributable to forestry, thus, attracting local people to want to come together and invest in small sawmills and other forestry activities.

While the issue of public awareness of forestry matters may not be seen as a political priority by persons consulted, they agree that there are implications politically. They argue that the politicians want to be seen as environmentally conscience by the electorate, particularly in the face of extensive criticism surrounding the deforestation and degradation of numerous hillsides on New Providence Island and the Family Islands, due to uncontrolled excavations for quarry, soil and rocks.

Respondents agree that the whole issue of public education and awareness on forestry requires that all stakeholders be a part of the process. Carey (1997) felt that leaving the issue to the forestry institution alone would allow for bias on their part on aspects of forestry activities, with possible discrimination against other sectors.

## 3.3 Agriculture, the main competing land use

Many persons contacted clearly described agriculture as the main competing land use with that of forestry, and recognized this as a major issue which historically has been in constant conflict with forestry. As Dr Hammerton (1997) iterated *"agriculture displaces forests...and can lead to major loss of habitat, fragmentation and to pollution."*

Since 1993, following the release of the Agricultural Land Policy (ALP) designed to facilitate and foster the long-term development of the agricultural resources of the Bahamas, some respondents felt that conflicts have developed between the forestry and agriculture sectors. This is particularly so regarding the best use of the limited land resources. For one, the best arable lands are those comprising natural pine forests (Little, et. al., 1977). Thousands of acres of forested lands have since been transferred (removed) from the forest estate to the Ministry of Agriculture for development. Although the acreage being applied for by locals may be small scale in some cases, as the agricultural sector develops, greater demands may surface for huge tracts of land (Carey, pers. comm., 1997).

However, according to Deveaux (1997), trees will be destroyed in order to grow large amounts of food for human beings to eat. What is required is a mechanism which would enable sustainable agricultural regimes to co-exist, with sustainable forestry regimes. He further argues that the conflict between the two sectors has to be put into the context that forestry is agriculture. He concluded that "forestry is the most lasting form of agriculture initially started by the creator and exploited by man...and is a conflict of survival, if we kill it we die, if we use it we survive" (ibid.).

Persons contacted agreed that numerous issues are at stake due to the conflicts which include the livelihoods of local communities, their quality of life and the quality of the environment in which these communities reside. Isaacs (1997) iterated that "the dwindling plant and animal genetic resources and the economic development of the country" are at stake due to the conflict. Maillis (1997) added that in the 1980s, when the citrus industry was flourishing, the GOB intended to put some 80,000 acres (32,388 ha.) of forest lands under citrus production, which certainly would have placed the remaining pine forest resource under a serious threat. Now, most of the citrus farms are either bankrupt or in reprieve, thus, preventing further large-scale permanent conversions of pine forest lands to citrus plantations.

Further concerns were raised that in the long term potential cattle and goat farming enterprises could further pose a threat to the resource. Other concerns were centred on the historical destruction of valuable native hardwood trees and ecosystem destruction.

The issue of agriculture land use versus forestry has come to the forefront as evident by the implementation of the 1993 ALP by the Government, and land allocation for such development from the forest estate. According to Brennen (1997), the DOA is still requesting additional lands that have been designated for forestry or other protected areas. Here, it appears the issue is one of availability of suitable lands for agricultural development, at the expense of decreasing forestlands.

No detailed quantitative economic costs/benefits analysis has been done on the various mixes of land use - agriculture versus forestry in particular. There is the need for such analysis. However, there have been qualitative analysis studies undertaken in the Bahamas on the issue of agricultural land use and forestry. Of particular significance were the recommendations of the Land Resource Study, 1977 which stated, "although it is inevitable that the acreage of forest land will diminish because of agriculture...it is considered essential that such encroachment should be carefully controlled. Destruction of valuable tree crops can only be considered where:

i) such clearing could be said to advance the general welfare of the people of the Bahamas;
ii) all alternative sites...have been examined and rejected;
iii) any land, which it is proposed to sever from the forest estate, has been surveyed for its suitability for the proposed new use.

The GOB established a National Land Use Committee (NLUC) under the umbrella of the BEST Commission to deal with land use issues and conflicts, such as with agriculture and forestry. Respondents agree that it is very difficult for the individual sectors to effectively address the issue. There has been a general agreement with those consulted that the rural communities in the Family Islands are mostly affected. Hammerton (1997) iterated that individuals who have a commercial interest in the use of land for agriculture and or forestry are also affected.

It was agreed that most issues in the Bahamas centres on land-use and has political implications. The case of agriculture is no exception. The 1993 ALP by the Government clearly brought this to light. It was a political decision to allocate additional forested lands for agricultural development, based on the government's intention to expand the local sector to produce food for local consumption, and reduce the import food bill.

Deveaux (1997) concluded that the appropriate way to address *"the perceived conflict of agriculture, which is the competing land use with forestry is by legislation, rezoning and by prudent policy."*

## 3.4 Land Use Planning and Development

Land use planning and development has not only been recognized as a critical issue but also a serious problem and trend which impacts not only the forestry sector, but all other sectors that have a need for the use of the limited land resources of the country.

The stakeholders (agriculture. forestry, tourism, physical planning and water) agree that forestry cannot be developed in isolation, in that it has to be coordinated with other government agencies and activities. Further, it must be compatible with the pattern of other land uses, and give due consideration to the legitimate needs and aspirations of local communities (Little et. al., 1977). A respondent indicated that *"in developing communities, there is a sustained demand for forestlands to be used for agriculture, building purpose...hence the challenge to maintain an equilibrium between forest conservation and land development remains ever present"* (Turnquest, pers. comm., 1997).

Due to the particular significance in this regard, as expressed by various persons contacted, there was and still is the absence of any strategic land use planning, particularly long-range planning for sustainable development of the land based resources. This has resulted in tremendous conflicts in the appropriate use of land resources. Deveaux (1997) argues that the biggest conflict in the Bahamas is between urbanization (not in its simplistic sense) and trees. That is to say, how many trees to cut

down to build roads, houses, bridges, hotels, marinas, schools etc, and the potential polluting impact that diminishes the major filtration systems of mangroves swamps, coppice forests and the traditional pine forests, *"and not how much land is needed to grow corn"*.

Johnson (1997) concludes that the conflicts have been compounded by the high incidence of encroachments on Crown forestlands by illegal squatters who build dwelling homes and contribute to habitat fragmentation. Additionally, there is no environmental plan for the country. Numerous sensitive areas are under threat from urbanization as industrial developments continue to encroach on forestlands. No guidelines are in place as to how to develop lands adjacent to these areas (Proctor & Redfern, 1997). Other developments, such as Real Estate Development by private interests and low cost housing schemes by the government, further deplete the land based resources of the country (Cant, pers. comm., 1997).

The Department of Physical Planning (DPP) is the agency responsible for development planning and land use, under the Town Planning Act (1961). This function is undertaken through land use plans, development plans and zoning plans. However, the Department has focused primarily on development control as opposed to long range planning, a necessary requisite for sustainable development of land based resources (Major, pers. comm., 1997). Cant (1997) further contends that there are tremendous conflicts between various land development agencies, including forestry, agriculture, industry, housing, real estate development and tourism. Stakeholders generally agree that in the absence of a strategic land use policy and mechanisms for the Bahamas, it will be very difficult to resolve conflicts of competing land use.

In terms of what is at stake, Hardy (1997) indicated that to be "the future of the land based resources and the nation's economy". He further iterated that the costs associated with this issue include the use of the lands at the expense of other users and the benefits include income for the economy. Deveaux (1997) added that the number of trees we need to cut down is at stake. Major (1997) suggests that there are environmental costs due to deforestation. Hammerton (1997) argues that there is the need to "balance land use between sectors by zoning". Butler (1997) contends that "great benefit would be had by discussions with those competing agencies to arrive at clear goals for land usage." Other benefits would be a healthy nation due to clean air and a healthy life, once there is harmonization between urban development and sustainable forestry development (Deveaux, pers. comm., 1997).

The current rate of land development throughout the Bahamas has brought to the forefront the issue of the lack of effective land use planning and development (Russell, 1995). It has been argued that the rapid expansion of the Bahamian economy has placed tremendous pressures on the land resources to the extent that there is great deterioration in the resource base. Of significance in this regard is in the marine environment, and the effects of coastal sand mining due to coastal development (Deveaux, pers, comm., 1997), where there is the need for analysis when such facilities are being put in place. This is particularly true for New Providence and Grand Bahama Islands, where rapid urban spread puts pressure on land use" (Johnson, pers. comm., 1997). Maillis (1997) supported this view and added that in New Providence it is a disaster, in that urban spread and bad planning are engulfing both agricultural and forest lands. He sited the example of government intending to remove a huge tract of pine forests at Gladstone Road to expand the City Dumpsite.

Major (1997) added that *"the use of Crown Land by the Government to achieve its economic objectives has resulted in conflicts with forestry"*. The mass media through radio talk programmes and newspaper articles have focused attention to land use and development, and have begun to sensitize the average Bahamian in this regard.

The government appointed a BEST Commission, and the NLUC to analyze the issue and address land-use conflicts. A question being raised is how to use the body of knowledge and research to make better policies (Deveaux, pers. comm., 1997). The DPP continues to address these issues in concert with the NLUC, and in consultation with the other sectors impacted, and proposes to develop long-range land use plans for New Providence and the Family Islands. Deveaux (1997) further adds that the agencies required to contribute to the efforts should include the BNT, DLS - Forestry, DOA, WSC, Ministry of Education, and the Ministry of Health. What is lacking, he adds, is effective coordination of these agencies, which is where the greatest potential lies. Evidently, the issue affects entire communities, in addition to the sustainable development of all land- based resources.

In terms of whether this issue has political implications, Hammerton (1997) indicated that *"everything has political implications and certainly anything that affects peoples access to and use of natural resources." Ferguson (1997) contends that "the use of land has political implications, as land is power, and politicians and officials use it for leverage to their favour".* To the contrary, Deveaux (1997) indicated that there is no strong political representation regarding the implications of overall land development policy, including forestry policy. However, he further emphasized the fact that the Ministry of Agriculture and Fisheries and the Conservationists have strong feelings relative to environmental conservation, as expressed by the establishment of numerous land and sea parks throughout the country.

Respondents generally agreed that this issue is certain to affect other issues. Hardy (1997) indicated that the land use issue would affect the future development of the country. Ferguson (1997) further added that it is likely that "foreign investor's confidence in government in providing land for needed projects" may be impacted. Once one moves away from the major pine forest islands to the southerly islands, the water bearing lands become more fragile where coastal development take place (Deveaux, pers. Comm., 1997).

In terms of how significant are the effects, respondents generally agree that socially and economically families and standards of living may be impacted, in addition to the sustainable development of all land-based resources. A respondent argued that politically, the issue could mean the difference between one party governing for a term or being in opposition. Environmentally, respondents suggest the effects could mean a possible permanent loss of resources and natural habit for wildlife and biodiversity. Deveaux (1997) concludes that if we do not harmonize development, then there is likely to be long term social, political and environmental affects.

In terms of whether the issue is value laden, respondents agree that once subjective judgements are being made then values are always present. Further, there is no systematic way of quantifying the facts regarding the issue as described earlier.

In order to treat the issue, it was accepted that the forestry institution alone cannot accomplish this task. What is required is a concerted effort on the part of all government stakeholder agencies, along with the non-governmental environmental entities and the general public to effectively address the issue.

Land use studies have been undertaken in the 1970s (Land Resource Study, 1977) to analyze land use and development issues and recommended options to address them. In early 1996, a study titled "Zoning Ordinance Review - Scoping Study - New Providence" was commissioned by the Ministry of Public Works. The objective being, to review the need for revisions to zoning orders in New Providence, and to assess the need for additional studies for a comprehensive plan for New Providence and to be a part of a wider comprehensive planning study. The study has since been completed and is under government consideration.

What is required in terms of contingency planning is a process of monitoring and research, to help the details of planning and to improve effectiveness of the outcomes. Followed by a review of our past history, in combination with research and knowledge of what has been done world-wide (Deveaux, pers. comm., 1997). Further, it is accepted that professionals must come together to formulate policy based on an evaluation of conflicts. The knowledge and information obtained can be synthesized in legislation following a consensus.

## 3.5 Water Resource Development

Persons involved in the water resource sector in the Bahamas (Water and Sewerage Corporation) agree that forestry and water complement each other. However, the issue is really the effective management of both forest and water resources. It was agreed that while there is no real conflict at present between the two sectors, there is the likelihood that once there is an increased demand for forest products, potential conflicts in resource uses may arise.

Of particular concern to the water resource experts was the issue of agricultural expansion and other developments (residential) onto water bearing areas, particularly where clear-cutting of forests for

these activities are involved. Maillis (1997) added that education is necessary to sensitize the population of the relationship between good water and pine forest. That is, the two sectors go hand and hand; and the forest should stop being regarded as wastelands. Thus proper education would justify the existence of forestry.

Weech (1997) indicated that "developments into water bearing forested areas would result in a loss of water resources, potential pollution due to sewage disposal and encroachment of buffer zone between supply areas and human settlements". This has become an issue based on reports from the WSC on activities from two prime water bearing areas in the Bahamas. Firstly, on North Andros Island, numerous examples have been sited of encroachments and human development into the Barging Scheme Wellfields. Also, in Abaco Island, where it was identified that there is the need to expand the existing wellfields, but this is hindered by nearby developments.

In terms of cost, the WSC indicated that it would become necessary to relocate the water supply areas, or use of more expensive alternatives, such as Reverse Osmosis, which requires the development of expensive filtration/sterilization options. The WSC further stated that analysis has been carried out on this issue, and they are currently dealing with the whole issue of encroachment into water bearing forested areas. It was identified that government action, without consultation with the Corporation, is the main conflict in this issue of encroachment.

Overall, the consumers are the ones affected, as the WSC would have to go further to provide a safe water supply. It was agreed that there are political implications, in that the implications are good for the politicians in the short-term, but bad in the long-term.

Consequently, this issue would affect other issues, as water would become scarce, and the cost of delivery would rise, as the WSC would have to go further to develop the resource and to sustain it. In terms of effects, Weech (1997) iterated this to be very significant, in that agricultural and other development onto well fields cannot presently co-exist. Further, there is the need to coordinate planning of water extraction systems with forest management.

It was agreed that to adequately address this issue, an integrated Water Resource Management Strategy is needed. Further that there is the need for regulations governing the use of water. Such regulation is said to be in draft form. Lastly, a Water Resource Council is required to bring all players and stakeholders together.

## 3.6 Introduction of Exotics Species

Concern was expressed by numerous individuals, including agriculturists, environmentalists and others in the Bahamas on the issue of exotic species. Historically, many of the plants established as ornamentals and hedges are introduced species. One particular species now naturalized, which has assumed dominance in areas where it has either been planted or has invaded, is Casuarina equisetifolia, commonly known as casuarina.

Consequently, the issue of exotic species has resulted in conflicts between those who are in favour of exotic species (e.g. casuarinas) and those who categorically oppose them. Of special significance is the issue regarding the casuarina. The species was introduced as an ornamental tree and use as a shelterbelt along coastal shores. According to Hammerton (1997) the casuarina is *"commonly regarded as an undesirable invasive alien...and in certain instances it is...but it is a uniquely successful colonizer of rocky spoils and rock debris and produces a very high quality fuelwood and charcoal."*

The parties involved in this conflict include communities who are in favour of the species and some environmentalists who wish for its total eradication. The government agencies have mixed feelings regarding the issue. In fact, the Ambassador for the Environment made a press statement on the issue to the fact that "the casuarina has no value". Some respondents agree, including the Forestry Institution, that it is time that the valuable features of the species be recognized so that it may be properly utilized. They further argue that the future survival of this wonder tree is at stake.

Considerable financial costs would be associated with the total eradication of the species from the country, as it is prolific in its regeneration habitats (Russell, 1995). The species has great benefits in terms of its fuelwood and charcoal potentials, and its ability to fix nitrogen in degraded soils and to stabilize moving soils (Hammerton. pers. comm., 1997).

The casuarina tree has become an issue following the cutting down of large, old casuarina trees in New Providence Island within the last two years, by the Ministry of Public Works and some private citizens. This has been a common practice along scenic drives and beach fronts. A public outcry ensued, with vested interest groups, neighbourhood associations, the mass media via numerous talk shows and newspaper articles focusing attention on the issue. No proper, scientific analysis has been undertaken on the casuarina issue, but mostly speculation as opposed to factual information. Other noted exotic species in the same category as casuarina in terms of its undesirability, include the Brazilian pepper tree, which is being considered for total eradication.

The DOA in concert with the DLS - Forestry Section and the BNT are making attempts to address the issue regarding the casuarina specifically and exotics in general. This issue has affected total communities, in addition to the survival of native species, considered more valuable than the exotics. The issue of the exotics has become political, particularly with respect to the casuarina tree, where the government has made attempts to appease the public outcry of the total eradication of the species in certain areas, by allowing them to remain.

# 4. PROCESSES AND MECHANISMS OF POLICIES FORMULATION

## 4.1 General Comments

In the Bahamas, the best description of environmental and development planning is 'top down'. This approach tends to be characterized by an apparent separation between policy-making and implementation. Senior civil servants (professional staff/technocrats) and politicians are responsible for policy formulation, with very little public input. Once the policy has been formulated, with the approval of Cabinet, the lower level officers are then responsible for its implementation.

The forestry policy formulation in the Bahamas is no exception to what is described above. The National Forestry Policy Statement will be reviewed significantly, in terms of the process of its formulation. However, among other forestry policy formulation processes there are significant similarities, but very little significant differences (refer to section 2.3.3, re: draft forestry legislation, 1996).

## 4.2 Policy Formulation Process for the "National Forest Policy Statement"

### a) Issue Search and Agenda Setting

The need for a national forestry policy began in the late 1950s, as a result of recommendations made over a thirteen-year period by Messrs. E. W. March, W. A. Robertson and F. S. Collier (all Forestry Advisers to the Secretary of State for the Colonies). Under the conditions of the existing Timber Concessions, issued in 1900 and 1906 for 100-year periods, the concessionaires were provided much freedom of action and showed little regard for sustained yield practices and fire protection, among other concerns. Thus, presenting a need for comprehensive forest policy to effectively regulate and control forest resource exploitation.

In 1953, a forest policy was drafted, to provide the basis for the eventual control and management of the pine forest resources of the Bahamas, by the established forestry institution.

However, it was not until 1986 that a revised National Policy Statement was drafted, following the initiation of a National Forestry Development Project. Although based primarily on the provisions of the 1953 draft policy statement.

**b) Deciding how to decide**

The decision was taken as early as 1949 that the newly created "Forestry Administration" - Department of Lands and Surveys - would be the agency responsible for dealing with the management of all forestry resources in accordance with the forest policy provisions. The forestry administration along with the Forestry Advisers finalized the draft forest policy for the Bahamas, which was then reviewed by the government.

**c) Issue definition**

The critical issue relative to the drafting of a national forestry policy centred on the existing timber licenses in the 1960s being out of date with current forestry management principles (i.e. sustained yield practices). This was compounded by the high incidence of uncontrolled forest fires that continued to cause incalculable damages to the national forests.

Another issue arose in that the forest resources were not being scientifically managed, due to a lack of necessary policies and guidelines, compounded by the absence of forestry staff and other much needed resources. Further, the forest resource was undervalued in terms of license fees and royalty payments, therefore, the government received less than it was worth for exploitation of the resource.

**d) Forecasting**

It was forecasted that a National Forest Policy would form the basis for the drafting of forestry legislation in the Bahamas. It would effectively legalize the process of sustainable forest management, thereby controlling existing and future forestry licenses practices.

Another forecast of the policy was the provision that future license royalty rates be structured and periodically revised to ensure that the government secured adequate returns for its forest resources.

**e) Setting objectives and priorities**

The overriding objective of the National Forestry Policy as envisioned by government through the forestry institution (Forestry Section - DLS) in 1953, and subsequently in 1986, was to ensure the orderly development of forest resources in the Bahamas. Further, it was to institute a programme to prevent the continued depletion of resources and to allow positive planning for the future. Also, that forest policy is fundamentally related to integrated land-use policy, promoting the conservation and development of limited resources, including water. The explicit policy objectives are described in Section 2.2 of this report.

In setting the policy objectives, the policy makers (in this case, the FAO Forest Adviser, and senior forestry personnel) reviewed the existing conditions of forestry in the Bahamas. The issues of future land-use, particularly agriculture development (i.e. the conversion of forestlands to agriculture) and the use of the limited water resources, were given special consideration. Here, it was recognized that inevitably the acreage of forestlands would diminish because of agriculture, settlement and industry.

These factors also served as constraints and limitations to the forest resource sustainable development and conservation. Other issues identified included forestry as a facet of conservation, forest economics, forest licensing, local forest industries and forest resource royalties.

Much consideration was given to the fact that policy is fundamental to legislation and to defining the functions, responsibilities and powers of the forest institution.

**f) Option analysis**

The analysis of the options for forest policy was rather subjective. However, it was based on the current state of affairs in the country regarding the forestry sector, in particular, the lack of appropriate

institutional arrangements for forestry. No forest management plan existed or programmes for research or development. Furthermore, there were inadequate forest royalty fees for the resource utilization, among other issues.

It was a clear-cut decision to define a policy to address the deficiencies identified at that period. No formalized analytical methodology was used in the appraisal or selection of an option of forest policy. The policy makers (senior civil servants, the Minister responsible and the FAO Forestry Advisor) discussed the issues at a meeting and agreed to include them within the policy framework.

### g) Policy implementation, monitoring and control

The GOB is presently considering the forestry policy as its position for effective sustainable development of the forest resources. However, provisions were made in the 1986 budget of the Forestry Section - DLS totalling some $250,000 for the implementation of the forestry development programme. Further, two local counterpart Bahamian forestry staff were recruited and trained in all aspects of forestry, alongside three expatriate forestry personnel. A formal diploma in forestry training courses overseas was provided to the Bahamian staff following the in-house training programme.

The forestry institution began to set up sub offices in the "Family Islands" headed by qualified Foresters to manage the forest resources within their districts. Forest management, conservation and forest fire control plans were prescribed for each pine- forested island and activities commenced thereafter.

On Abaco Island, permanent sample plots were established in the pine forest to monitor growth and record general site conditions.

However, there was not an effective mechanism in place to monitor whether the forest management objectives and other programmes were being achieved in the manner intended initially. Within a five to ten year period, ongoing staff recruitment was curtailed to a mere one professional Forester followed by cuts in funding forestry development activities to zero dollars in the 1995/96 budget. This prevented effective control measures being put in place to remedy the situation.

### h) Evaluation and review

Currently no analytical consideration is being given to the evaluation of the forest policy in terms of determining whether the objectives are or have been achieved. However, government is considering the whole issue of forestry development in light of submitted forestry development projects by potential investors.

### i) Policy Maintenance, succession and termination

Pending the outcome of government consideration and review of the forestry sector, a policy decision is likely to evolve as to the future of forestry development in the Bahamas.

# 5. THE POTENTIALITIES OF THE FORESTRY SECTOR IN THE BAHAMAS

## 5.1 The Forestry Resources of the Bahamas

### a) Pine Forests

The most productive and commercially viable forest resources are the pine forests (Pinus caribaea var. bahamensis), found on four of the northerly islands of the Bahamas, namely, Abaco, Andros, Grand Bahama and New Providence (Map .1). There are no man-made plantations in the country. In 1986, the areas of state and privately owned pine forests lands were recorded during the National Forest Inventory, as follows:

*Table 7: Areas of Pine Forests by Location and Land Tenure*

| *Island* | *Crown (ha)* | *Private (ha)* | *Total (ha)* | *% Total land area of island* |
|---|---|---|---|---|
| Abaco | 55,860 | 4,402 | 60,262 | 35 |
| Andros | 114,630 | 6,746 | 121,376 | 20 |
| Grand Bahama | 26,216 | 2,091 | 28,307 | 20 |
| New Providence | 2,416 | 1,500 | 3,916 | 18 |
| Totals | 199,122 | 37,353 | 213,861 | 23 |

(Source: Bahamas Pine Forest Inventory, 1986)

Of this total of 196,706 ha., approximately 14,639 ha. of forest lands on three pine forest islands, (excluding New Providence Island) have been transferred to the Ministry of Agriculture and Fisheries, as part of the GOB new ALP in 1993. The policy was designed to make available suitable arable lands and foster long term development and conservation, as well as protect the country's future capacity to produce its own food. This land transfer reduced the total pine forestlands administered by the forestry institution to some 182,066 ha.

### a) Coppice Forests

The coppice forests which are found in the central and southern Bahamas have never been inventoried, and comprise the re-growth of various hardwood species harvested in the past for export as logs. These broad-leaved tree species include noted valuable hardwoods, such as Buttonwood (*Conocarpus erecta*), Mahogany (*Swietenia mahogani*), Gum Elemi (*Bursera simaruba*), Ratwood (*Erythroxylum rotundifolium*), Black Ebony (*Pera bumelifolia*), Brasiletto (*Caesalpinia vesicaria*), Horseflesh (*Lysiloma sabiau var. bahamensis*), Lignum Vitae (*Guaiacau sanctum*), and Red Cedar (*Juniperus bermudiana*).

### b) Mangrove Forests

The mangrove ecosystems of the Bahamas occur predominantly on the lee shores. The total area of mangroves and other wetlands is estimated to be 4,286 $km^2$ (1,674 mi2). The major mangrove wetlands include the North Coast of Grand Bahama Island Western Andros Island, The Marls of Abaco Island, and the Bight of Acklins Island.

## 5.2 The National Demand, Needs of Forestry Services, Products and Functions

Currently, there are no primary forestry industries in the Bahamas, such as sawmilling, since forest exploitation ceased completely in the late 1970s. Consequently, the Bahamas relies heavily on imports of forest products to sustain its demand for the goods and services that are derived from such resources. Hence, the sector contributes little to GDP.

However, the existing naturally regenerating pine forests on state lands provide an excellent asset for renewed sustainable forest utilization for small-scale local forest industries, which can in many instances meet the local demand for approximately one third of the imported products.

In a Technical Report "Options for Forest Industries in the Bahamas, 1986" by the FAO Forest Industries Consultant, (a component of the "Forestry development Project, 1986") the following potentialities were recognized as providing more feasible options for industrial development:

- **Sawmilling** - To initially develop a small-scale operation in North Abaco Island. In general, the report stated that the production of good quality domestic sawnwood should readily compete with imported pine.
- **Fuel for power generation** - This includes the use of cordwood as fuel to power electricity generation on the pine forest islands.

- **Utility Poles** - The production of utility poles for local consumption represents a small but special market. The operation could readily form part of a sawmill logging operation.
- **Posts** - The production of fence posts provides a potential use for thinnings or selected cordwood. Posts can be preserved by pressure treatment or diffusion methods.
- **Charcoal** - On a small scale based on thinnings and sawmill waste the potential for local charcoal operations are excellent. The entire domestic demand for imported charcoal can be met by such local production.

The Department of Statistics Trade Statistics of timber and timber products for the Bahamas are given in Table 8. These statistics are the latest available for the year ending 1995.

***Table 8: Bahamas Imports in Timber and Timber Products, 1995***

| *Item* | *Quantity* | *Unit of Measure* | *Value B$* | *Main Suppliers* |
|---|---|---|---|---|
| Fuel Wood, | 30,822 | 100 lbs. | 77,867.00 | U.S.A |
| Wood Charcoal | 150,048 | 100 lbs. | 103,094.00 | U.S.A, Haiti |
| Pulpwood | 19 | Ton | 4,070.00 | U.S.A |
| Wood Pilings | 6,993 | Foot | 679,200.00 | U.S.A |
| Wood Rough | 262 | 1000 board ft | 88,400.00 | U.S.A |
| Flooring – strips | 395,009 | 1000 board ft | 16,897,946.00 | U.S.A, Curaco |
| Piles | | | 520,646.00 | U.S.A |
| Sawnwood, Veneer sheets | | | 10,914,559.00 | U.S.A, Canada, Bonaire, Iraq |
| Boxes, Cases, Crates | | | 399,644.00 | U.S.A, U.K., Germany |
| Roof Trusses | | | 74,729.00 | U.S.A |
| Builders, carpentry &, joinery | | | 6,281,874.00 | U.S.A, U.K. Canada, Jamaica, |
| Wood Utensils | | | 1,154,965.00 | U.S.A, U.K. Panama, Germany |
| Wood Shingles | 580,078 | 1000 Linear ins | 510,882.00 | U.S.A |
| Paper and paper Products | | | 25,599,429.00 | U.S.A. Canada, Germany, U.K. |
| Totals | | | 63,307,300 | |

(Source: Department of Statistics Trade Statistics, 1995)

These statistics reveal the extent to which the Bahamas is dependent upon timber and timber product imports. The total value of these goods of some B$63,000,000.00 in 1995, shows the great economic opportunities that local forest industries can contribute to socio-economic development. While it may not be feasible to totally reduce the wood product imports, a significant dent in the expenditure of GDP on imported wood products could be achieved by the development of local forest industries, as prescribed earlier. In this regard, Maillis (1997) argues the need for a government policy to assure selective harvesting of sized trees as opposed to clearfelling activities. The resource can then be used to produce wood panelling, flooring, picture frames, artifacts workshops, carvings and other similar industries.

In addition to the potential of the local forest for primary forest products, there is considerable potential of trees and forest to local watershed management and maintenance of the hydrological cycle. This is particularly significant on the larger northern islands of the Bahamas where the natural pine forests are located, which is the major source of fresh water in the form of fresh water lenses. It has been estimated, based on Land Resource Studies in the 1970s, that the thickness of these lenses vary from 1.5m to 18m on some 13 islands and containing approximately 7,649 million $m^3$. (Little, et. al., 1977 and Cant, 1980).

It becomes obvious that the forest vegetation cover of land over the lenses plays a role in the absorption and storage of rainwater in the underground lenses. It is not known to what extent the present stands of pine forest influences water lenses build-up and storage.

According to Maillis (1997), the forest resources offer great opportunity for game hunting of wild animals (quail, wild hogs, pigeons and introduced deer) by tourists, once the activity is properly planned and managed. What may be necessary is the establishment of forest hunting estates for this

purpose. He ascertained that proper scientific studies and assessments are required to determine whether the activity is sustainable with forestry.

The indigenous forest resource also offers opportunities for agriculture and agro-forestry development. Evidently, the best arable lands for agriculture production are situated on lands forested with natural pine forests, particularly in the northern islands. Currently, large acreage of this arable land is under citrus cultivation and other cash crops, both for domestic and export markets.

In addition to large scale agricultural operations, small farmers are being encouraged to cultivate cash crops intermixed with forest trees and other agro-forestry systems. The natural forests which fringes these agricultural developments, provide much needed shelter from strong winds and can reduce the effect of catastrophic tropical storms and hurricanes that the country may experience during the summer months.

Although soil erosion is not a critical issue in the Bahamas, due primarily to a low relief, lack of rivers and poor soil structure, the existing intact natural forest resources contribute to the reduction in soil erosion, which can lead to a decline in fertility and productivity.

Other significant potentials of the forest resources include conservation of biological diversity, ecotourism, aesthetics and natural beauty, establishment of natural parks and protected areas. In this regard, Maillis (1997) suggests the establishment of a network of biotic corridors to remain in their natural state within the pine forests of Abaco, Andros and Grand Bahama Islands. He further argues the need for a policy which allows setbacks from the borders of blue holes, creeks and other wetlands, thus preventing development, thereby ensuring protection of biodiversity within these ecosystems for the enjoyment of all. Other potentials include microclimate regulation and climate change.

By becoming a signatory and ratification of several international agreements, conventions and protocols, such as Convention on Biological Diversity, Convention on Climate Change, and CITES, the Bahamas has committed itself to ensuring that national policies, programmes, plans and activities take into account the above cited derivatives from its natural forests. In addition to the far reaching implications at the local, national and regional levels. An essential component is the need for the GOB to undertake a public inquiry and cost/benefit analysis on all potential opportunities in the forestry sector, to allow locals to share in the wealth of the national forests (Maillis, pers. comm., 1997).

## 5.3 Comparative Advantages for the production of High Added Value Products

The Bahamas has not fully taken advantage of the potential advantages of producing high value forestry products as a means of increasing productivity of the goods, services and other benefits that can be derived from its natural forests.

Historically, as mentioned earlier, the Bahamas' natural forests have been extensively exploited to the extent that no significant commercially viable hardwood resource remains to produce high value products. This valuable resource was exported as logs. Similarly, the pine forest resources were primarily exported as logs, although numerous homes today show evidence of construction from the local pine from past exploitation.

Today, the pine forest provides an opportunity to produce high value products, such as furniture and joinery; in addition to constructional timber (i.e. the traditional 2 x 4s, 2 x 6s). The remaining sized valuable hardwoods, such as Mahogany and Horseflesh, are used extensively by local woodcarvers to produce high value handicrafts and cravings that are prized by tourists and locals alike, and command competitive prices in the local market. However, there is limited scope for any large-scale joinery industry due to the non- existence of sized hardwoods.

The Bahamas is primarily a service sector economy with tourism being the main industry, it offers an excellent opportunity to explore the ecotourism market as a sustainable viable high value product; in the same manner, it has become a world leader in the tourism industry. The unique features of the Bahamas' natural environment, including the blue holes and sink-holes scattered throughout the forest

ecosystem, particularly native plant and animal life (e.g. Indigenous Bahama Parrot and other native and neo-tropical migrants) provide for a pristine setting for this fast developing industry.

It becomes evident that the Bahamas can benefit from the production of high value added products, and be competitive locally, and in regional markets. The resource is available, particularly the natural pine forest for commercial entities, and the entire forest resources for ecotourism activities. The Bahamas has excellent relations with its Caribbean neighbours and its close proximity to the Continental United States makes it easy to tap into their markets. It is just a matter of finding the correct marketing strategies and cost-effectiveness in producing the value goods and services that can compete in the competitive markets.

## 5.4 Regional Partnership Opportunities

Based on the identified potentialities of the forestry sector in the Bahamas, there is tremendous scope for regional partnerships in the form of "Regional Actions" to facilitate this process. It is also envisioned that the other countries in the Caribbean share similar opportunities. Below are some significant partnerships:

- Develop a specific Regional Forestry Focal Point (RFFP) Partnership whereby appropriate training, capacity building, and particular forest industries specialization can take place among regional countries to facilitate the implementation of national actions.
- Through the Partnership programme (RFFP) and CARICOM, collect, synthesize and share in a structured and systematic manner, relevant information, knowledge and experience on sustainable forestry sector practices and policies; in addition to assessing potential interested overseas investors.
- Facilitate through the FAO Sub-regional Office in Barbados, the development and improvement of national and regional databases and the dissemination of information to relevant forestry sector groups on the potentialities in the region, economically and the environmental values.
- Through the FAO Regional and Sub-regional Offices in the Caribbean, facilitate more effective international and interregional cooperation, coordination, collaboration and technical exchanges in the field of forestry and other land-use, through interregional networks, workshops and training programmes.

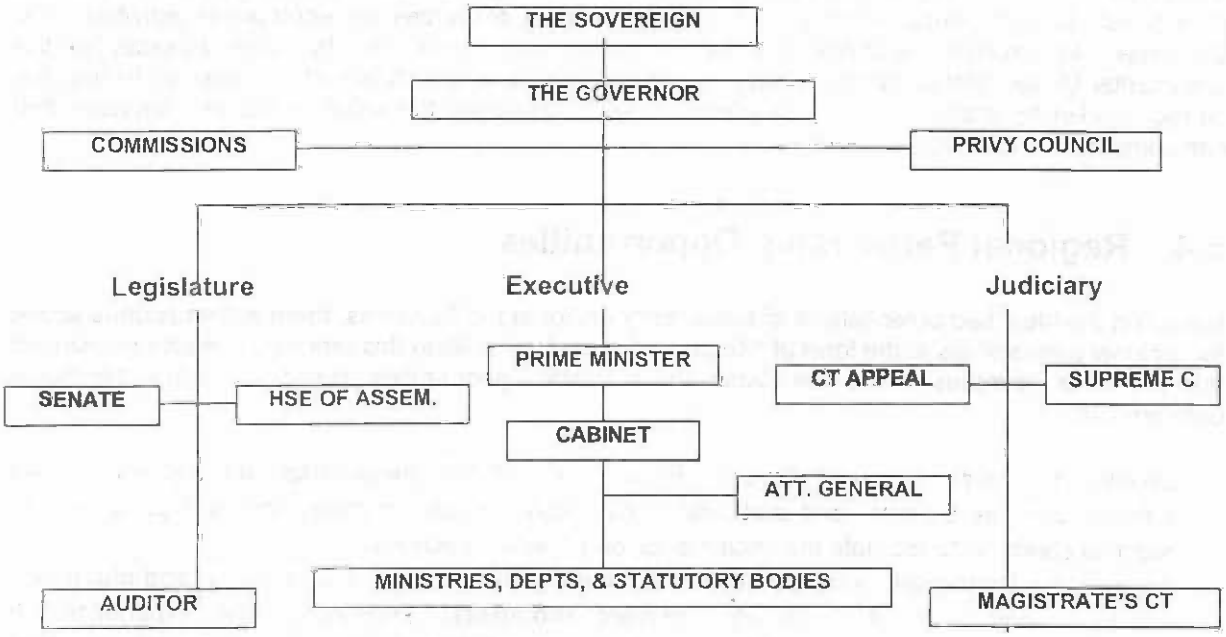
# 6. INSTITUTIONAL ARRANGEMENTS

## 6.1 The System of Government in the Bahamas

The Commonwealth of the Bahamas is an Independent, Free and Democratic Sovereign Nation, having gained full Independence from Gt. Britain on July 10th 1973. However, the Bahamas retains its ties with the Commonwealth of Nations and also retains the British monarch as its head of state. The Bahamas enjoys a written Constitution and a parliamentary system of government. The Constitution, the supreme law of the land, provides for a Parliament which consists of the Queen as Head of State, whose representative in the Bahamas is the Governor General, a nominated upper chamber called the Senate and an elected House of Assembly. The Constitution also provides for a Supreme Court and a Court of Appeal. Appeals from the Court of Appeal are made to the Judicial Committee of the Privy Council in the United Kingdom (Figure 1)..

The House of Assembly has 40 members elected by adult suffrage every five years. The executive body, the cabinet, consists of the Prime Minister and 13 Ministers, including the Attorney General, and is responsible to the House (Figure 1). The upper chamber, the Senate, has 16 members, of whom nine are appointed by the Governor-General on the advice of the Prime Minister, four by the Leader of the Opposition and three after consultation with the Prime Minister.

*Figure 1: Flow Chart showing the Organization of the Bahamian Government*




## 6.2 The Country's main Outputs and the Institutions Associated

### a) Tourism

Tourism is by far the most important industry in the Bahamas. Since the late 1950s, the government has launched and implemented aggressive promotional and development policies aimed at expanding this sector. The Ministry of Tourism (MOT) has played a pivotal role in this respect. The MOT was established as a marketing agency through the Tourism Promotion Act (1963) with its mission, to promote and maintain the Bahamas as a premier tourist destination by identifying and satisfying the needs of tourists.

Today the industry is responsible for some 60 percent of the country's GDP, estimated to be a gross visitor spending of some B$1.45 billion in 1996, and directly employs some 50 percent of the labour force. Large-scale tourism development continues to be actively encouraged by the GOB, with the basic policy being: "to encourage the growth of the stopover visitors (i.e. persons staying for 24 hours or more). The stopover visitors account for more than 80 percent of the tourist expenditure.

### b) Finance and Banking

Finance and Banking is considered the second major economic activity in the Bahamas. Services offered include asset protection, private and commercial banking, captive insurance, portfolio management, foreign exchange transactions, administration and establishment of trusts, company formation, securities transactions and mutual funds.

This predominantly offshore sector, is dominated by banking and mutual funds activity, and has positioned the Bahamas as a premier offshore financial jurisdiction (Central Bank of Bahamas Annual Report, 1996). The Ministry of Finance and Planning is the government agency with overall responsibility for, and relationships with, the Central Bank of the Bahamas (the central financial institution in the country), banks and trust companies; in addition to government finance, accounting and borrowing.

Of a total of some 425 banks and trust companies licensed in the Bahamas in 1996, some 299 were public as opposed to restricted, non-active, or nominee institutions, of which 279 operated purely in the offshore sector. Offshore banks assets approximated $186 billion in mid 1996 vis-à-vis $198 billion at end 1995, while the number of banks with a physical presence declined from 188 to 184 (Central Bank of Bahamas Annual Report, 1996). However, the Report further stated that the gross economic contribution of the sector was expected to exceed $260 million in 1996, compared to $237 million in 1995. Further, since 1991, the sector's contributions to GDP have increased by an average of 6.6 percent or more than $12 million per year.

### c) Agriculture

It has been estimated that 90 percent of the agricultural land in the country is under government ownership. The Ministry of Agriculture and Fisheries has the mandate to carry out the new Agricultural Land Policy (ALP) as established under the Ministry of Agriculture (Incorporation) Act 1993. The policy is designed to expand the Bahamian economy by shifting its dependence from tourism.

Some significant provisions of the Act makes the Minister of Agriculture a corporation sole with powers to hold, lease and dispose of agriculture land. To enter into contracts and to sue and be sued. It does not, however, empower the Minister to sell agricultural land, and limits the lease periods to a maximum of two consecutive 21-year terms.

The Prime Minister, who has responsibility for Crown Lands, under the Act, leased to the Minister of Agriculture for 50 years, some 14,640 ha. of prime agricultural land for agricultural purposes (5,616 ha on Andros Island, 4,753 ha on Abaco Island; and 4,270 ha on Grand Bahama Island). Since the Act came into effect, hundreds of applications for the lease of agricultural lands have been received, and are under review by the Ministry.

Poultry, winter vegetables and citrus fruits are the main components of the agricultural sector. Indications from the sector suggest that the agricultural output increased modestly in 1996, based primarily on expanded poultry production, as crops exports declined (Central Bank Annual Report, 1996).

## 6.3 The Institutional Arrangements for Forestry

### I) Forestry Institution

The forestry institution was initiated in the Bahamas in 1952, when the post of Forest Supervisor was created. Since a large majority of the commercial forests were on Crown Land, forestry was placed under the control of the Crown Lands Office. Under the present constitution, the Crown Lands Office has been re-designated, the Department of Lands and Surveys (DLS), with a Deputy Director as the administrative head. The post of Director is currently vacant.

The DLS was first situated within the Ministry of Development. Since then, it has successively changed to the Ministry of Agriculture and Fisheries, Ministry of National Security, Cabinet Office, Ministry of Works and Lands, and Office of the Prime Minister, where it presently resides.

In 1985, a Forestry Section was established within the DLS with the objective of managing the forest resources of the Bahamas to eventually make the country self-sufficient in sawntimber, in perpetuity. The current staff complement within the Forestry Section, comprises one Forest Officer, one Forest Supervisor, one Forestry Assistant III, and one Trainee Forest Officer.

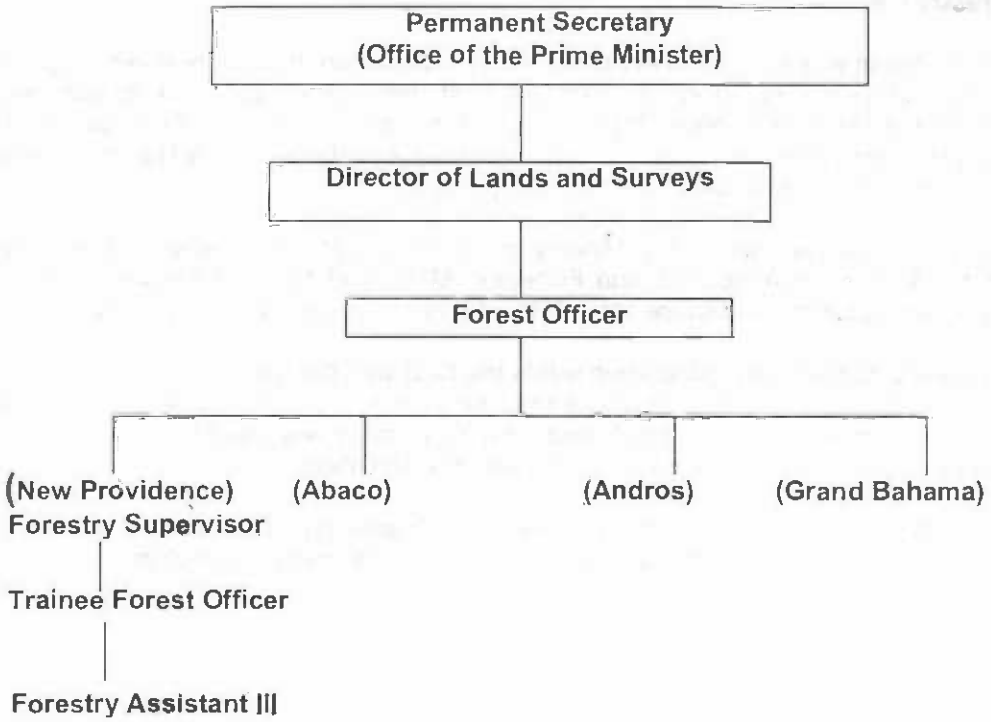
Based on a new and revised Forestry Development Programme 1997-2000, Table 9 shows a proposed staffing structure and institutional arrangements for the forestry institution.

***Table 9: Proposed Staffing Structure – 1997 Onwards***

| *Post* | *Location* | *Staff Nos. & by Years* | | | |
|---|---|---|---|---|---|
| | **Northern Region -** | | | | |
| | Abaco, Andros Grand Bahama & New Providence | 1997 | 1998 | 1999 | 2000 |
| Chief Forest Officer | | - | - | 1 | 1 |
| Snr. Forest Officer | | - | 1 | - | - |
| Forest Officer | | 1 | - | - | - |
| Asst. Forest Officer | | - | - | 1 | 1 |
| Trainee Forest Officer | | 1 | 1 | - | - |
| Forestry Assistant III | | 1 | 1 | 1 | 1 |
| | | 3 | 3 | 3 | 3 |
| | **Central Region –** | | | | |
| | Eleuthera, Cat Isl., Long Isl., San Sal., Rum Cay | | | | |
| Forest Officer | | - | 1 | 1 | 1 |
| Forest Supervisor | | - | - | 1 | 1 |
| Trainee Forest Officer | | - | 1 | 1 | 1 |
| | | - | 2 | 3 | 3 |
| | **Southern Region** | | | | |
| | Acklin/Crooked Islands, Mayaguana, Inagua & Ragged Island | | | | |
| Forest Officer | | - | - | 1 | 1 |
| Forest Supervisor | | - | 1 | 1 | 1 |
| Trainee Forest Officer | | - | - | - | 1 |
| | - | 1 | 2 | 3 | |

The existing 1997 staff organization of the forestry institution in the Bahamas is shown in Figure 2.

***Figure 2: Existing Forestry Organogram – Staff Organization***



The Forestry Section (DLS) has been given the responsibility for the overall management and conservation of the national forest resources of the Bahamas, as prescribed in the Forest Management Plan, 1986. Additionally, its institutional functions include all the prescriptions laid out in the draft forest policy, specifically:

- Responsible for managing the legally constituted forest estate, for production of forest produce, conservation and protection of biological diversity;
- Expenditure of public funds in exercising this function;
- Licensing and promotion of sound forest development proposals;
- Plan and implement forest fire control programme;
- Manage and sustain a comprehensive forest research programme
- Encourage tree planting or forest development on suitable private lands;
- Define and revise periodically forest royalties and stumpage rates;
- Staff supervision, recruitment and training;
- Plan and implement public education programmes in forestry and conservation.

It is expected that once comprehensive forestry legislation is enacted, the forestry institution will be responsible for the implementation of the provisions of the Act, which would amplify the forest policy and provide the legal basis for the institution to more effectively carry out its functions and mandate.

### II) Associated Institutions

There are numerous agencies that have a special significance to the forestry institution and directly impact the activities of the sector. The more important of these institutions include:

*a) Department of Agriculture (DOA)*

The outputs from this sector to the national economy have been described in Section 6.2(c). Of significance, is the Department's mandate as it relates to the forestry sector, which is the administration of various Acts, such as the Wild Birds Protection Act (1952), Plants Protection Act (1916), and Wild Animals Protection (1968). Additionally, the Department is responsible for the enforcement of the Convention on International Trade in Endangered Species (CITES) of which the Bahamas is a member.

The Conservation Unit of the Department currently liaises with the forestry institution periodically in the undertaking of its numerous responsibilities. Although DOA is headed by a Director and a staff complement of some 300 employees, approximately 1 person is employed full time in the Conservation Unit. The Unit was provided with a budget of some $10,000.00 for the fiscal year 1997/98, to undertake its programmes (Carey, pers., Comm, 1997).

*b) Department of Physical Planning (DPP)*

The Department of Physical Planning (DPP) falls under the OPM, and is one of the most influential agencies involved in land development approvals. It is primarily responsible for development planning and for the formulation of long range development plans for the Bahamas. The DPP is staffed with 14 persons and is headed by a Director, with the majority of the staff involved more with development control rather than strategic planning.

Recently, under the passage of new environmental legislation "The Conservation and Protection of the Physical Landscape of the Bahamas Act, 1997", the Department has the responsibility for the regulation of excavations, mining and removal of protected trees. From this perspective, the forestry institution, along with the DOA, is called upon periodically to assist the Department in this regard. Additionally, the DPP has committed itself to promoting sustainable development of the country's natural resources, where development proposals and plans are being designed and framed more on the sustainable development principles and concepts.

c) *Bahamas Environment, Science and Technology Commission (BEST)*

The BEST Commission resides in the OPM. It is made up of representatives of both public and private sectors, to serve as the National Focal Point for national and international environmental matters. BEST is also charged to develop a National Conservation and Sustainable Development Strategy, and to coordinate all matters relating to the Bahamas; participation in international conventions, treaties, protocols and agreements concerning the environment.

The Commission is currently staffed by an Ambassador for the Environment, who acts as Chairman to the Commission; a Deputy Permanent Secretary who is the administrative officer, along with three secretarial staff. The GOB has recently provided increased funding to the BEST Commission to ensure effective implementation of the agency's functions. In addition, provisions have been made to increase the staff complement, and to increase the autonomy of the Commission.

d) *Water and Sewerage Corporation (WSC)*

The Water and Sewerage Corporation is a quasi-government organization established by an Act of Parliament in 1976. The Corporation is headed by a General Manager and employs in excess of 300 individuals. The Act makes water a national resource of the Bahamas and all rights in water are subjected to the superior right of government to administer the marketing, production, extraction and use of water in the public interest. The water resource of the Bahamas comprises fresh, brackish, saline and hyper-saline water, as they occur beneath the ground surface in the form of lenses, and in surface water bodies throughout the islands of the Bahamas.

The majority of the land area where fresh water is located is on Crown Forest Lands in the Northern Bahamas. Fortunately, forestry development and water extraction management can be compatible, in that proposed forestry reservation programmes can provide an excellent legal base for the protection of water resources. Administration of water resources requires close coordination between the WSC and the Forestry Institution.

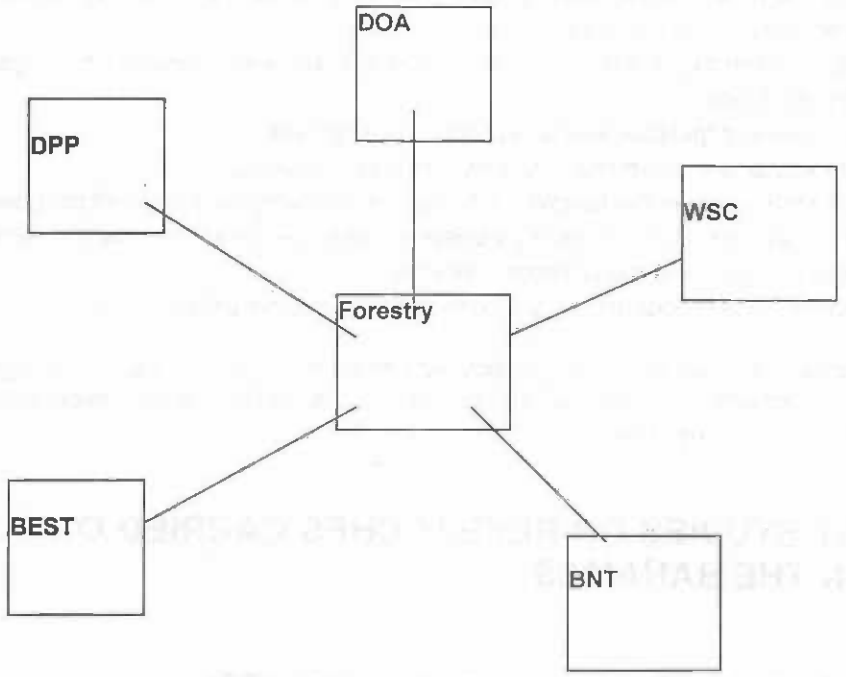
e) *Bahamas National Trust (BNT)*

The Bahamas National Trust (BNT), a non-profit quasi-government organization was established by an Act of Parliament in 1959. Its prime objective is *"...promoting the permanent preservation for the benefit and enjoyment of the Bahamas, of lands and tenements...and as regards lands and submarine areas... and animals, plants and marine life."* (BNT Act, 1959). The Act also empowers the BNT to determine that certain areas (terrestrial and marine) shall be held in trust and be inalienable. In this regard, the BNT has designated some 12 areas as National Parks throughout the Bahamas, in accordance with the Act, and in consultation with the GOB. These Parks are managed by the BNT and activities within the parks are subject to certain by-laws and regulations.

The BNT is also involved in the enforcement of other Acts and Conventions, including the Wild Birds Protection Act, Wild Animals Protection Act, Plants Protection Act, and CITES which have direct relations with the forestry institution. There is a cooperative dialogue between the BNT and the forestry institution. As at September 1997, the total staff complement of the BNT was 20 persons, with an Executive Director responsible for the administrative functions. Membership is more than 1700 (BNT, Currents, 1997).

Figure 3 below illustrates the linkages of the above mentioned institutions with the forestry institution.

*Figure 3: Institutions most relevant to the Forestry Institution and their linkages.*




## 6.4 Regional and International Organizations of Relevance to the Forestry Sector

Historically, the Bahamas has been associated with all regional and international forestry organizations in its efforts to manage its natural forest resources. Particularly during the colonial era, the forestry institution has had direct ties with British Forestry Institutions. They include the Oxford Forestry Institute (formerly the Commonwealth Forestry Institution), Commonwealth Forestry Association (CFA), The Standing Committee on Commonwealth Forestry (Forestry Commission, U.K.), the Commonwealth Secretariat, and other Commonwealth Forestry Departments. Today, these ties have continued.

Within the region, the forestry institution has direct linkages with numerous agencies and organizations for both technical and financial support for forestry matters. These include CARICOM, Caribbean Development bank (CDB), Inter-American Development Bank (IDB), Organization of American States (OAS), United States Department of Agriculture USDA - Forest Service, Caribbean Forestry Association, Caribbean Conservation Association and the Institute of Tropical Forestry.

Internationally, other relevant agencies include, the FAO of the UN, IMF, World Bank, UNDP, UNEP, CSIRO, DANIDA Forest Seed Centre, CAB International, WRI, WWF, IUCN, IIED, European Union, and ITTO.

## 6.5 Perceptions of the Forestry Organization Performance

There is a general agreement among the stakeholders within the forestry sector and those that directly impact, or are impacted by the sector that the performance of the forestry institution in carrying out its mandate has been unsatisfactory at the least.

Further, the stakeholders agree that the principle reasons for this unsatisfactory performance boils down to a few significant factors, most notably:

- The lack of comprehensive forestry legislation to provide the legal framework for the forestry institution to carry out its mandate;
- Duplication of effort and overlapping responsibilities between environmental agencies and that of the forestry institution
- Lack of government "political will" for forestry development;
- Inadequate sustained government funding for forestry development;
- Inadequate staff complement to effectively carry out forestry development programmes;
- Lack of effective education, public awareness or appreciation of the role and benefits of forests to the local environment and the national economy
- Poor coordination and cooperation between related government agencies.

Until these factors and issues are addressed with satisfactory outcomes, it was agreed that nothing significant would change in terms of the forestry sector achieving its maximum potentials, in its contribution to the economy of the Bahamas.

# 7. PAST STUDIES OR RESEARCHES CARRIED OUT ON FOREST POLICY IN THE BAHAMAS

## 7.1 The Forestry Development Project, 1986

### a) Purpose and main objective of the study

The purpose and objectives of the study were threefold:

- carry out a forest land utilization and inventory survey of selected pine areas covering some 141,000 ha on the islands of Abaco, Andros and Grand Bahama;
- prepare a management plan for these pine forest; and
- provide training for selected forestry technicians to strengthen institutional capability.

### b) Type of study

The study was in the form of a development project. The Bahamas Government requested technical assistance from FAO. FAO administered Forest Development Assistance (TCP/BHA/4401 (F)) operated from September 1984 to March 1985 and provided the technical basis and programme of work for the forestry project which followed.

### c) Sponsor

The Inter-American Development Bank, (IDB), sponsored the project. It was based on Loan Agreement No ACTN/SF - 2399 - B4 for forestry development between the GOB and the IDB. The agreement was signed on 3 May 1984.

### d) Budget and duration

The overall budget for the study was some US$600,000.00. The study commenced in September 1985 and was completed in September 1986.

### e) Research methodology

The methodology involved in the study comprised the development of sub-programmes to achieve the overall objectives, and included:

**Sub-programme -1**

- Produce and interpret aerial photographs of the main pine forest of the Bahamas. Classify the land according to tenure, present land use and possible future land use. Determine which areas contain sufficient pine stocking to warrant field sampling;
- Execute a forest inventory of the identified areas;
- Prepare a management plan for the productive forest based on sustained yield, considering short and longer rotation options;
- Consider and recommend industrial and non-industrial alternatives for the most economical utilization of the available forest resources. Identify mutual investment requirements in the areas of forest management and industrial development. Prepare terms of reference for feasibility studies of the better industrial alternatives;
- Recommend institutional adjustments needed to implement a national forest development programme including legislative and administrative requirements.

**Sub-programme - 2**

- Assist the Ministry in preparing a training programme for selected forestry trainees and recommend criteria for the evaluation of results;
- Provide a minimum of six months overseas forestry technical training for two Government officers contracted to work in the Forestry Section;
- Provide on-the-job training of counterpart staff.

**f) Type and source of information used for the analysis**

Information to complete this study came from numerous sources and included the following:

- Previous reports, research and policy files on forestry matters from the Department of Lands and Survey (Forestry Section)
- Land Survey data from the Survey and Mapping Section - Dept. of Lands & Surveys
- Agriculture and Land Use data from the Ministry of Agriculture and Fisheries
- Meteorological Data from the Department of Meteorology
- Hydrological Data from the Water and Sewerage Corporation
- Statistical Data on forestry products imports/export from the Department of Statistics
- Legal Drafting Information and advise from the Department of Legal Affairs
- Industrial investment information form the Ministry of Finance

**g) Results of the study**

The study produced a Management Plan for the pine forest of the Bahamas, which incorporated recommendations for forest industry development, institutional strengthening, sustainable forest management, and forestry policy and legislation proposals. Further, two Government Officers received two year forestry training, overseas.

**h) Scope of the study**

The scope of the study (project) involved an overview of the existing position of forestry in the Bahamas, and rationalized a perspective for the future development and sustainable management of the pine forest resources. Additionally, it provided a framework for the future institutionalization of forestry in the country.

**i) Follow up**

Following the completion of the study, the GOB made provisions in the annual budget of the DLS to begin the implementation of the provisions of the Forest Management Plan.

## 7.2 Report To the Government of the Commonwealth of the Bahamas on Forestry Legislation

### a) Purpose and main objective of the study

The main objective of the study was for the FAO Legislation Consultant to assist the GOB in the preparation of a new draft forestry law. To implement the Government's forest policy and take into account recommendations made under the Bahamas Forestry Development Project (UTF/BHA/003).

### b) Type of study

The study is a report on forestry legislation, and includes a description of the existing legislative arrangements governing forestry in the Bahamas. Prescriptions followed regarding proposed provisions for draft forestry legislation.

### c) Sponsor

The sponsorship for this study is a continuation of the Forestry Development Project (UTF/BHA/003), executed by FAO in 1986 and funded by the IDB, as described in 7.1(c).

### d) Budget and duration

The budget was incorporated with the study at 7.1 and is described at 7.1(d). Study duration: April 1987 through September 1987.

### e) Research methodology

The study was based on the process of a review of an outline for the proposed forestry law provided by T. G. Allan, FAO Senior Forest Advisor to the Bahamas Forestry Development Project, 1986, as a starting point. Consultations and discussions took place with stakeholder agencies in the Bahamas, under the legal guidance of the Legal Draftsman - Attorney General's Office. The conclusions formed the basis of the report on forestry legislation and eventual drafting of forestry legislation for the Bahamas.

### f) Type and source of information used for the analysis

The draft outline on forestry legislation prepared by the FAO Senior Forest Advisor to the Bahamas Forestry Development Project, 1986, provided the initial technical information base for analysis of the study. Other informational sources included, the Forestry Officers in the local forestry institution, and other governmental agencies, such as DOA, DPP and WSC. The Legal Draftsman and other legal officers from the Office of the Attorney General provided the legal terminology for the draft legislation.

### g) Results of the study

At the completion of the study, a comprehensive report to the Government of the Bahamas on Forestry Legislation, 1987, a Draft Forestry Act, Draft Forestry Regulations and a schedule of forest reserves, protected forests and conservation forests with accompanying maps were the end products for consideration by the GOB.

### h) Scope of the study

The study provided the Forestry Institution in the Bahamas with a comprehensive Draft Forestry Act. The Act was designed to provide for the legal definition of the forestry institution in which it could effectively undertake its mandate to declare a permanent forestry estate for sustainable forestry development of the pine forest resources of the country.

**i) Follow up**

It was anticipated that the draft legislation would be presented to Parliament for enactment to become Law. However, there was no follow up process to ensure this eventuality.

## 7.3 Review of the Forest Management Plan and Proposal of a Fire Control Plan for the Pine Forests of the Bahamas, 1990

**a) Purpose and main objective of the study**

Based on the terms of reference, the prime objective of the "consultancy" was "to assist the Department of Lands and Surveys in the preparation of a detailed technical profile and the corresponding terms of reference for a feasibility study of an investment programme in forest development and protection".

**b) Type of study**

The study was based on the recruitment of a consultant to critically review the existing Forest Management Plan, 1986 and whether its prescriptions were being implemented. Further, to provide prescriptions for a Forest Fire Control Plan for the pine forests of the Bahamas.

**c) Sponsor**

Sponsorship for the study came from the IDB following a request from the Ministry of Finance for a short-term technical cooperation from the Bank. The objective was to assist the Department of Lands and Surveys (Forestry Section) in the preparation of a design and feasibility study, as described earlier.

**d) Budget and duration**

No details on a budget are available. The study commenced in May 1990 and was completed in November 1990

**e) Research methodology**

The Consultant undertook a review of the existing Forest Management Plan, 1986. Talks were held with all staff and administrators of the forestry institution to determine to what extent the management plan's prescriptions were being carried out.

The Consultant made visits to the three pine forest islands included in the management plan, to closely observe the conditions under which the Bahamian pine grows and the damage that fire inflicts to the forests. In addition to the ground survey, the Consultant flew on a small aircraft over the entire forest area on the pine islands.

**f) Type and source of information used for the analysis**

Same as 7.2(f)

**g) Results of the study**

At the completion of the study a Consultancy Report was presented to the IDB and GOB.

**h) Scope of the study**

The overall scope of the study provided a framework for the establishment of a Forest Fire Control Plan for the Pine Forests of the Bahamas. Costs were provided for the plan's implementation and benefits of such a plan were set out.

i) **Follow up**

No provisions were made for any follow up activities.

# 8. CONCLUSIONS AND RECOMMENDATIONS

## 8.1 General Comments

Numerous emerging and current issues, problems and trends were identified, following consultation with a wide cross section of the Bahamian populace. Evidently, it was discovered that the average citizen was unaware that a forestry institution existed, which is responsible for the administration of the forest resources of the country. In many instances, they were not readily aware that there are forests in the Bahamas.

Usually, the natural pine forests are referred to as "pine-barrens" as opposed to pine forests; and the hardwood forests as "coppice". The term "pine-barren" emerged due to the very difficult terrain (exposed honeycombed limestone rock) in which the pine forest resides, and its barren nature.

Evidently, it was discovered that those persons who are educated and involved with environmental issues were more knowledgeable on forestry related issues; in this case, very few persons at best. On the Family Islands, outside of New Providence Island, the Local Administrators and Councillors had some ideas and opinions on some of the issues and problems regarding the sector from their local communities' perspective.

In reviewing the issues, they were grouped together based on similarities and discussed. The following were seen as crucial and fundamental to the forestry sector, in terms of their impacts. These included: i) The future of forestry in the Bahamas, ii) Public education and awareness, iii) Agriculture, the main competing land use, iv) Land use planning and development, v) Water resource development, and vi) Introduction of exotics species. In essence, most persons felt that all the identified issues and problems were present, due directly to the lack of comprehensive land use policies for the Bahamas. Further, it is viewed that these issues can only be addressed by partnerships and concerted dialogue between the policy makers, the professionals and the public sector, which would evolve into policies, strategies and programmes enforceable through legislation.

In terms of the process of forestry policy formulation in the Bahamas, evidence from a number of existing policies suggests an "ad-hoc" modus operandi in this regard. There were or are no set processes for forest policy formulation. All policies reviewed showed a reactionary approach to addressing forestry issues via policy, as opposed to a proactive approach. This is amplified by evidence that suggests following a trend of resource destruction or crises, consultants are brought in to review and analyze the situation. Recommendations are made, then government prescribes some policy action to address the issue. Decisions are made at the high tiers of government, with little input from the average citizen. The process lacks formalization.

Historically, from a forestry perspective, this trend has continued. Even once the policy issue has been defined, analyzed and objectives prioritized, its implementation would follow, but not to completion. In all cases of forest policies, implementation of the policy has not been completed for various reasons; most notably, inadequate sustained financial resources, inappropriate institutional arrangements and "lack of political will".

Further, there is no formalized provision for monitoring and control, evaluation or review. Hence, in most cases the policy comes to an abrupt end following its initial implementation, and, therefore, lacks sustainability.

## 8.2 Constraints and limitations in carrying out the Study

The Consultant experienced significant constraints and limitations in carrying out this study which included the following:

- The three months time allocation provided by FAO to complete this task was considered too short, particularly when one had to set appointments with key policy-makers, senior government officials, environmentalist, etc., who in most instances, were "too busy" to discuss the issues in depth, and in most cases gave superficial responses. Further, the Consultant was not afforded any "special leave" in order to effectively undertake the task.
- The costs associated with visiting the Family Islands of the Bahamas (totalling some 16 major islands) was calculated to be astronomical at best, to adequately discuss the issues with the affected communities. To address this concern, the Permanent Secretary/Department of Local Government agreed to distribute a specially designed questionnaire to the Local Administrators and Councillors to obtain some responses. Many responses were either inadequate or not received in the time period allocated.
- Within the Bahamas, there was very little information published on issues of forest policy. The local institutions, NGOs, mass media, tertiary institutions relied solely on the forestry institution for information on the sector. All pervious studies on forestry policies, published by external entities, such as the CDB, IDB, FAO, etc reside with the forestry institution.
- There were no existing forestry industries in the Bahamas to solicit views on the commercial issues associated with the forestry sector. All merchants who sold forest products are importers, and their views were generally outside the focus of this study.
- The Forestry institution in the Bahamas currently comprises one qualified professional Forester, who is the contracted Consultant for this study, which afforded little opportunity for diversification of the issues relative to the forestry sector as a whole.

## 8.3 Opportunities and Options for improving capacity in Policy Making

The Caribbean Forest Policy Study process provides an excellent opportunity for improving capacity in policy making for countries in the region. Within the Bahamas context, there are numerous deficiencies in the current ad-hoc process of forest policy formulation.

No doubt, the case studies from each Caribbean country's perspective would reveal similarities and some differences in the policy formulation processes. What is required is a mechanism that is adaptive to each country's uniqueness.

This project can and hopefully will provide FAO with much needed information for effective analysis of the social, economic and environmental significance of the forestry sector in the region. An evaluation of potential policy formulation options for consideration by governments should follow.

It may be necessary to utilize the forum at CARICOM to solicit the support of the political directorate in perspective countries, in the evaluation of options for policy formulation. It is doubtful whether any other forum, regionally, would be more effective in this regard.

## 8.4 Recommendations

Evidently, a general synopsis of the issues relative to the forestry sector in the Bahamas centred mainly on the lack of effective land use policy, planning and strategies for sustainable resource management and development.

It is fundamental that the Bahamas develop, formulate and implement a comprehensive land use strategy. This would provide the framework for all sectors of the economy, particularly those involved in land based resources to effectively manage those resources under their portfolio. To this end, the following, in addition to others, are recommended:

- Formulate and implement a land use plan for the Bahamas, which would effectively assign (zone) land areas for agriculture, forestry, conservation, industry, tourism, real estate development, etc. In effect, if this is not achieved, it will be impossible to initiate forestry development programmes, particularly where there is strong competition between different land uses which will further reduce lands available for forestry development.
- Review, evaluate and strengthen the existing National Forestry Policy of the Bahamas, to identify any gaps and weaknesses for effective implementation.
- Enact comprehensive forestry legislation to incorporate forest policy provisions, in addition to creating the appropriate institutional arrangements for the forestry institution to effectively undertake its mandate for sustainable forest resource management.
- Establish the BEST Commission in the Bahamas as a legislated, fully functional and inter-sectoral Government agency with an appropriate budget and staff to fulfil its mandate, with particular reference to addressing land use issues and conflicts.
- Plan and implement a comprehensive public education and awareness campaign on all aspects of forestry development and conservation, in a concerted manner with all relevant agencies in the Bahamas.
- Identify, in collaboration with FAO and perspective governments of the Caribbean countries, an appropriate forest policy formulation process or mechanism to allow for effective implementation of forest policies in perspective countries. Giving special consideration to each country's socio-economic and political climate and agenda.

The study's findings relative to process of forest policy formulation and issues and problems in the forestry sector for each participating country in the Caribbean region, be brought to the attention of the policy-makers in the perspective countries, for immediate attention and necessary action to address the concerns and issues.

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| Mrs. Catherine Benjamin | - | Deputy Permanent Secretary |

**National Land Use Committee/BEST**

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| Mr. Ivern Davis | - | Chairman |

**Department of Lands and Surveys**

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| Mr. Ralph Brennen | - | Actg. Surveyor general |
| Mr. Loftus Butler | - | Consultant |
| Mr. Richard Hardy | - | Senior Estate Valuation Surveyor |
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**Department of Physical Planning**

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| Mrs. Gloria Bain | - | Administrator - South Andros Island |
| Mr. Alexander E. Williams | - | Administrator - Bimini & cat Cay & Berry Islands |
| Mr. Charles King | - | Administrator - Cat Island, San Salvador & Rum Cay |
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| Mr. Christopher Thompson | - | Administrator - West Grand Bahamas Island |
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**Water and Sewerage Corporation**

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| Dr. Richard Cant | - | Assistant General Manager/FI |
| Mr. Philip Weech | - | Senior Hydrologist |

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| Mrs. Sandra Buckner | - | President/Bahamas National Trust |
| Mr. Pericles Maillis | - | Past President/Bahamas National Trust |
| Mr. Gary Larson | - | Executive Director/Bahamas National Trust |
| Mrs. Lynn Gape | - | Education/Public Relations Officer, Bahamas National Trust |
| Mr. Lionel Johnson | - | Chairman, Natural Science Division - College of The Bahamas. |
| Mrs. Carolyn Wardle | - | Chairman/Ornithology Group -Bahamas National Trust |

**Mass Media** - Broadcasting Corporation of the Bahamas

- Love 97 - Radio Station
- 100 Jamz - Radio Station
- More FM - Radio Station
- The Tribune Newspaper
- The Nassau Guardian Newspaper
- The Punch Newspaper

**Environmental Groups**

- Friends of the Environment
- ReEarth

# LIST OF ABBREVIATIONS

| | |
|---|---|
| AIDS | Acquired Immune Deficiency Syndrome |
| ALP | Agricultural Land Policy |
| BBDMP | Bahamas Biodiversity Data Management Project |
| BEST | Bahamas Environment, Science and Technology Commission |
| BNT | Bahamas National Trust |
| CARICOM | Caribbean Common Market |
| CIFOR | Centre of International Forestry Research |
| CITES | Convention on International Trade in Endangered Species |
| CDB | Caribbean Development Bank |
| CFA | Commonwealth Forestry Association |
| COFO | Committee on Forestry |
| CSD | Commission for Sustainable Development |
| DLS | Department of Lands and Surveys |
| DOA | Department of Agriculture |
| DPP | Department of Physical Planning |
| EC | European Commission |
| EU | European Union |
| FAO | Food and Agriculture Organization of the United Nations |
| FNM | Free National Movement |
| FY | Fiscal Year |
| GDP | Gross Domestic Product |
| GNP | Gross National Product |
| GOB | Government of the Bahamas |
| IDB | Inter-American Development bank |
| IIED | International Institute for Environment and Development |
| IMF | International Monetary Fund |
| IPF | Intergovernmental Panel on Forests |
| ITTO | International Tropical Timber Organization |
| IUCN | International Union for the Conservation of Nature |
| LACFC | Latin American and the Caribbean Forestry Commission |
| MFP | Ministry of Finance and Planning |
| MOT | Ministry of Tourism |
| NGOs | Non-Governmental Organizations |
| NFPs | National Forestry Programmes |
| NLUC | National Land Use Commission |
| OAS | Organization of American States |
| OPM | Office of the Prime Minister |
| PLP | Progressive Liberal Party |
| UNCED | United Nations Conference on Environment and Development |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| USDA | United States Department of Agriculture |
| WRI | World Resource Institute |
| WSC | Water and Sewerage Corporation |
| WWF | World Wide Fund for Nature |

# FOREST AND FORESTRY IN BARBADOS

**by R. Farnum**

## 1. INTRODUCTION

### Elements as they Relate to Barbados

The island of Barbados is located at 13.3 degrees North and 59.5 West. With a total landmass of 431 sq. km, and a population of approximately 254 000, land resources are scarce.

The island was discovered in 1605. Colonization was started in earnest in 1627, with the arrival of the first English settlers. At settlement, the island was almost completely covered with forests and other types of natural vegetation. Within 20 years, however, 50 percent of the land had been cleared to make way for the cultivation of cotton, indigo and other clean crops. Clearing was so extensive that within a century after colonization, 90 percent of the forests and natural vegetation had been removed. Today, only approximately 30 ha of the original forest cover remains, at Turners Hall in the parish of St. Andrew, with major areas of tree and natural vegetation still confined to these areas.

Dense pockets of secondary vegetation located on the steeper slopes of the Scotland District, in several gullies in and outside of the Scotland District and in the under cliff areas, provide some indication of what Barbados was like before its colonization. Approximately 15 percent of the current landmass is now under tree cover. Wetlands, consisting of some five coastal mangroves, account for 0.14 percent of terrestrial surface cover.

Most of the wood and wood products used on Barbados are imported. The country produces very little timber. Quantities produced are vastly insufficient to provide the critical volume to support a viable wood industry (pulp, paper, sawmill, etc.). Additionally, as the country moves closer to the new millennium, social and cultural trends have been witnessing a move away from the use of wood for house construction and towards block and concrete. Under such conditions, wood, except for outdoor barbecues and fish frying, is hardly ever used as a fuel. Fossil fuels also now constitute the predominant source of energy used in Barbadian homes.

Only one major local species (mahogany) has been and is still being exploited commercially by the thriving furniture industry. A small quantity is used for boat construction and for the manufacture of furniture, cabinets, souvenirs etc.

Over the last 40 years, attempts at reforestation have been principally confined to the Scotland District (Figure 1), where the soils are quite fragile and prone to erosion. Reforestation has been used as a measure of erosion control. The planting of Mahogany, fruit trees and trees for windbreaks and decorative purposes has also been encouraged through the years. Testimony to this are several stands of mahogany and fruit trees found at various sites throughout the island. Such programmes in the past involved tree planting to support fuelwood generation, and for soil and water conservation, but encompassed agroforestry aspects through the use of several fruit bearing species.

A large percentage of the mahogany plantings of commercial value are now very close to biological maturity. Little or no attempt, however, is being made to exploit them, or for their natural or artificial regeneration.

Most of the recent reforestation work carried out outside of the Scotland District has focussed mainly on exotic species along highways and within urban areas. Indigenous species are mostly being used on fragile/marginal lands where environmental conservation and preservation are priorities.

Reforestation programmes in the Scotland District have led to the reconstruction of various wildlife habitats. With the proposed designation of the Scotland District as a National Park, current and future reforestation and rehabilitation work can only enhance the biodiversity, and the scope for ecotourism and recreational activities in the area. Two major wildlife sanctuaries also now exist in the area.

Existing forested areas and gullies also constitute the source of materials for a small but thriving handicraft industry employing indigenous materials, focused mainly in the Scotland District, and utilizing the roots and barks of some of the species. The two main areas of focus of this activity are production of basketry and other handicraft products.

Despite relatively minor surface coverage, trees and forests nonetheless play a vital and multi functional role in the economy, contributing in minute ways to several economic activities. The role of trees, in the support of biodiversity and ecosystem maintenance in Barbados, is now seen as being increasingly more important. Trees are now assuming and being assigned a much greater role in environmental cooling, particularly in the urban areas, in the development of recreational facilities, and in highway and park aesthetics.

Local trees and shrubs, however, are no longer generally being used for the treatment of medical problems as most medical services and medicines are provided by the Government free of cost to a large segment of the population, and are always readily available to the average Barbadian. The use of readily available and synthetic medicines have almost totally eliminated the use of indigenous herbs, prevalent in previous generations.

Livestock agriculture in the past has benefited from agroforestry systems in which plants provided the primary source of food. Today, physical and housing development has led to a reduction in available grazing lands and to reductions in most of the local natural plant material from animal diets.

Some work is currently being planned in terms of inventory of plant genetic resources, to classify and quantify existent plant populations, as well as orchids, climbers, lianas and other floral species living in harmony with, or depending on woody plants for support, to provide for a better evaluation and for planning in relation to such resources.

While the tangible contribution of trees to GDP in the economy is relatively negligible, public awareness of the importance of trees has been growing. In recent times, programmes aimed at educating the Barbadian public on the importance of conserving and preserving biological resources through national parks, protected areas, wildlife sanctuaries etc. have gained some ascendancy. Such programmes, however, have not yet created enough drive to convert Barbadians into "nature thinking". A lot more work still needs to be done in this area to convince the average Barbadian on the importance of such biological resources.

## Forestry Related Institutions

Most of the forestry and forest related activities in Barbados are carried out by governmental organizations. These have been supplemented quite recently by a few non-governmental organizations (NGOs) and other community groups who have shown some interest in reforestation and related activities.

The main governmental organizations involved in forestry related activities are: Ministry of Agriculture and Rural Development (Soil Conservation Unit); Ministry of the Health and the Environment (National Conservation Commission (NCC); and Ministry of the Health and the Environment, (Division of the Environment (to a lesser extent). The NGOs include: University of the West Indies (UWI); Barbados National Trust (BNT); Barbados Environmental Association (BEA); and Caribbean Conservation Association (CCA) Community Groups and Organizations.

Several community groups are also active in forestry related activities. Their major orientation is towards development of small community parks in which a number of shade trees and some shrubby perennials are established to provide the appropriate social environs for recreation and relaxation.

Concerned individuals and community groups are also actively highlighting major environmental problems, such as climate change, water shortages, soil erosion, marine siltation etc. and their resulting impact, which are all influenced directly or indirectly by forest and tree cover.

Nature walks and hiking activities are currently being organized by various NGOs and community groups as a joint effort to re-emphasize the social values of landscape, trees and wilderness.

## Conventions

In the absence of a well articulated forest policy, local accession to international conventions, e.g. Convention on International Trade in Endangered Species of Flora and Fauna, Convention on Biodiversity, Convention to Combat Desertification, offer some degree of protection to forests, trees and areas of related environmental concern. Without a well-defined forest policy, however, backed by sound public awareness campaigns to ensure the necessary protection, these initiatives will die a natural death.

## Woodlands and Forests

Under Government's zoning and land use system, the following areas are categorized as forests and woodlands:

- Turners Hall woods: 30 ha of natural forest
- Joes River Forest: 39 ha of mature plantation forest
- Under cliff and gully woodlands: approximately 5000 ha
- Bawden and Greenland: 8 ha of young plantation forest
- Mangroves and Wetlands: 64 ha
- Small pure stands (mainly mahogany and casuarina) around most agricultural plantations.
- Road-side, coastal and small residential plot plantings.

## Protection of Flora and Fauna

At present, there are no terrestrial habitats or zones in the country designated as protected areas, although several existing natural habitats merit such designation. Neither has there been any systematic or concerted planning or conservation measures put in place to benefit these woodlands in the past. Some legislation, however, exists which offers some protection to trees under certain conditions.

It should be noted that a study is currently underway for the integration of a proposed national park system. When completed, fragile ecosystems falling within the national park boundary will be identified and protected, with amendments made to the existing legislation so that changes in land use would not affect these areas. Protective legislation is encompassed in the following Acts, found under Chapter 16 (2) of the Constitution of Barbados:

- **The Cultivation of Trees Act** - Provides for tax refunds to any landowner growing trees, not considered to be fruit trees defined under this act. The area where such trees are grown must not, however, be less than ½ acre.
- **The Tree (Preservation) Act** - Prohibits any person from felling or killing any tree having a girth in excess of one metre, unless permission is granted by the appropriate authorities (Chief Town Planner).
- **Town and Country Planning Act** - Permits the Chief Town Planner to prohibit the wilful destruction of trees and to direct the necessary replanting, should trees be discriminately felled without his or her permission.
- **Soil Conservation Act** - This Act is restricted to the boundaries of the Scotland District, giving the Chief Agricultural Officer the necessary powers to forbid any kind of action that may contribute to soil erosion within the district, such as:

a. Removal of trees, shrubs, grasses etc. from fragile areas;
b. Over grazing on erosion prone lands;
c. Physical development in critical areas; and
d. Mining.

Control of this latter set of activities is imperative if the fragile ecosystems within the district to be protected. Several other acts indirectly protecting flora exist. The same, however, cannot be said for fauna. Acts protecting faunal species are fewer and weaker. Indirect protection is given to flora under the following pieces of legislation:

- **Livestock (control of strays) Act**: This act deals more with the seizure and impoundment of stray rather than the actual protection aspect.
- **Animal Act**: This Act is quite similar to the Livestock Act except for a few different clauses.
- **Wild Birds Protection Act**: This Act makes it an offence to kill, wound or conduct trading activities with wild birds. The Act however, does not establish wildlife sanctuaries nor does it protect the birds' habitat.

## Forestry Related Government Programmes

The main government projects and programmes which tend to promote the interest of trees relate to:

- Soil Conservation Stabilization (Scotland District);
- Natural Park Designation (90 percent located within the Scotland District);
- Reforestation for recreational purposes, aesthetics and ecotourism (Principally NCC - Public Parks and Beaches);
- Public education programmes and seminars to highlight the possible links between forestry and the main economic sectors (Agriculture and Tourism).

Lead agencies, in this respect, are the Ministry of Agriculture and Rural Development through the Soil Conservation Unit; The Ministry of Health and the Environment through the National Conservation Commission (NCC); the Environmental Unit; and to a lesser extent the Town Planning Department and the Ministry of Foreign Affairs, Tourism and International Transport (Tourism Division).

Aspects of National Park Development, financing, legislation and policy fall under the jurisdiction of the Environment Ministry with most of the technical and scientific expertise being provided by local and foreign Personnel external to that Ministry.

The use of trees in agroforestry and in land stabilization programmes, was dictated by the SCU. These projects were financed almost entirely by the central government, except for a relatively short period in the mid 1980s, when some such works were financed by the international Development Bank (IDB) and European Development Fund (EDF).

The establishment of trees for aesthetics and ecotourism, technically speaking, falls under the jurisdiction of the NCC, as well as highway beautification, road-side plantations, park establishment, maintenance and other forestry related activities These activities are financed by the Government's budget. Resource Governmental and Non Governmental Organizations (NGOs) participate in some of these projects, especially in the area of technical advice.

## Country Socio-Economic Profile

### *Economy*

The Gross Domestic Product of Barbados in 1997 was 2.4 billion. Of this, agriculture and forestry accounted for 6 percent, with forestry contributing less than 1 percent. A mid 1990s survey showed a

national product per capita of Bds$9,200, with the country exhibiting one of the highest standards of living of the small island states of the Eastern Caribbean.

Historically, sugarcane and related activities dominated economic activity. From the early 50's, however, the economy has diversified into manufacturing and tourism in an effort to curb the unemployment rate, and to cushion the economy from the wild external shocks inherent in a dominant monoculture economy. In 1995, unemployment was estimated at 20.5 percent. After three years of downturn, economic recovery began in late 1993 after three years of contraction, fuelled principally by increased tourism activity and expansion in the construction industry. Today, the economy is now heavily dependent on the tourism sector, for which continued growth depends on growth trends in the industrialized countries, particularly Europe.

Major exports of the country consist of sugar and sugar products, other foods and beverages, chemicals, electrical components, and clothing usually which earn revenue in excess of Bds$160 million. The country's major trading partners are, USA 13 percent, UK 10 percent, T & T 9 percent and the Windward Islands 8 percent. In 1995, imports totalled some $703 million, comprising mainly consumer goods, machinery, foodstuffs, construction materials, chemicals, fuel and electrical components. The main trading partners were - USA 36 percent, UK 11 percent, T & T 11 percent and Japan 3 percent.

## ***Social***

The 1990 Population Census showed a population with the following structure:

| *Age* | *Percentage* | *Female* | *Male* |
|---|---|---|---|
| 0 - 14 | 24 | 30 175 | 31 507 |
| 15 – 64 | 66 | 86 103 | 82 727 |
| 66 | 10 | 15 849 | 10 034 |

The country has a population growth rate of less than 1 percent (0.24 percent). The birth rate averages 15.45 births/1 000, and a mortality rate of /000. There is a net migration of approximately of 4.82 migrants/ 1 000 people. Average life expectancy at birth is 74.16 years, with expectancy for males being 71.47 years and 77.06 years for females.

The literacy rate of the population is approximately 100 percent ranking among the highest in the world. Education is free up to tertiary level, and a compulsory school attendance policy is in place. The labour force, in excess of 124 800 (mid 90s) was distributed as follows:

Services and Government 41 percent;
Commerce 15 percent;
Manufacturing and Construction 18 percent;
Transportation; Storage;
Communication;
Financial Institutions 8 percent;
Agriculture 6 percent; and
Utilities 2 percent

The country has a modern transport system supporting some 50 000 domestic vehicles, and a road network of 1,570 km of paved, and 1 478km of unpaved roads, and 95 km of transitable tracts, comparing favourably for its size, with systems in the developed world. Increasing trading activity is further demanding that the lone airport be expanded or another constructed. The same obtains for the lone seaport, although the recent construction of a marina on the north western coast of the island just to the north of Speightstown, is expected to offset some of the traffic normally using the main port at Bridgetown.

# 2. CURRENT FORESTRY POLICY

There is no comprehensive compilation of written regulations, guiding principles etc. which specifically address forests and forest related activities in Barbados. What exists is disjointed and uncoordinated legislation, oriented more specifically to trees without encompassing the broader concept of forests.

## Existing Legislation

Most of the legislation which approximates, directly or indirectly, to espousal of a forest or forest related policy by government, by affording some measure of protection to forests and trees, was enacted about ½ century ago, principally for the protection of agricultural lands. Such legislation is still expected to address the problems of the forestry sector today. Such legislation needs to be urgently revised, updated and expanded to take into consideration changes in the outlook towards trees, as well as the current issues, dynamics and problems relating to forests and trees.

Existing legislation relevant to this area is incorporated under Section 16 (2) of the Constitution of Barbados, namely:

- **The Cultivation of Trees Act (1951)** - Which provides for tax refunds to any landowner growing trees, not considered to be fruit trees, as defined under this Act. Refunds are however only applicable for plantings of not less than ½ acre.
- **The Tree (Preservation) Act (1981)** - Which prohibits any person from felling or killing any tree having a girth in excess of one metre unless permission is granted by the appropriate authorities (Chief Town Planner).
- **Town and Country Planning Act (1972)** - Which permits the Chief Town Planner to prohibit the wilful destruction of trees and to direct the necessary replanting should trees be discriminately felled without his or her permission.
- **Soil Conservation Act (1959)** - The Act restricts the action of the executing Unit to the boundaries of the Scotland District, but gives necessary powers to the Chief Agricultural Officer or his agents to stop any kind of action that may contribute to soil erosion within the Scotland District, or take such as may be required to stem its degradation as it relates to:
  a. Removal of trees, shrubs, grasses etc. from fragile areas;
  b. Over grazing on erosion prone lands;
  c. Physical development in critical areas; and
  d. Mining.

## Institutions

The two major agencies involved in forestry related activities in the country are the Soil Conservation Unit (SCU) and the National Conservation Commission (NCC). The focus of the former is on stabilization and reforestation in the Scotland District, while the latter's current mandate involves the beautification of beaches and highways, and the establishment of Public Parks. The work of both of these bodies is financed basically through budgets provided by the central government. The actions of these two agencies constitute the two main manifestations of a de facto reforestation policy in the government domain. Both agencies are active in preserving and expanding the forest and tree resources. Their functions include:

- Enforcement of existing legislation relating to forestry;
- Evaluation and processing of applications for rebates and concessions on materials used in reforestation projects;
- Execution of public education and awareness programmes; and
- Offer of social/concessional support to the development and expansion of wildlife sanctuaries.

Various NGO's, Community groups and Service Organizations now also keenly promote participation in, and advancement of, the reforestation effort. They work primarily through community groups, with projects focused principally towards roadside and community tree plantings, for which they usually obtain strong rebates on the purchase of plants from the tree producing government agencies. Tree planting has also now become an integral part of many official ceremonies undertaken with Government Ministers, and seems to reflect a growing awareness of the importance of this activity at the highest levels. Schools have also been participants, to a large extent, in tree planting activities.

Currently, several nature walks and hiking activities are being organized by various NGOs and community groups as an effort to re-emphasize social values of the wilderness and appreciation of heritage and the environment. In addition to their active participation in tree planting activities, various environmentally conscious organizations like the BNT and the BEA have been lobbying for the declaration of natural vegetation and ecological habitats as protected areas, and for the regulation of their use.

## Conventions

In the absence of sound forest policy, the participation of Barbados as a signatory to the following conventions offers hope of some degree of pressure/action for the protection of forest and forest related concerns:

- Convention on International Trade in Endangered Species (CITES) of flora and fauna (March 1995);
- Convention on biodiversity (December 1993); and
- Convention to combat desertification (1997).

The success of the intentions of these conventions however will hinge on the development, locally, of sound public awareness campaigns and policies to support such initiatives, or such intentions will die natural deaths.

## Rebates and Concessions

Government initiatives for the support to tree crop farmers and forestry activities have been in place for some time. Provision exists for the making of rebates and grants on the purchase and establishment of trees, for which the following mechanism obtains: At the purchasing stage, any commercial farmer registered with the Ministry of Agriculture and Rural Development purchasing in excess of 50 trees (woody perennials) from a government nursery receives them at ½ the original price. Technical support is also offered by the Ministry of Agriculture to the farmer throughout the life of related projects. Schools, colleges and community groups receive plants free. Additionally, equipment purchased by farmers for tending operations such as tractors, vans etc are obtained at duty free prices, with rebates given on spray-cans, fertilizers and some chemicals used on agro-forestry related plantations.

## Public Education

Personnel of the Soil Conservation Unit, the forestry section of the Ministry of Agriculture and Rural Development, have been conducting seminars relating to trees and forests for a varied cross section of schools, persons and organizations. The primary aim of such seminars has been on highlighting the importance of trees and forests generally, and specifically in relation to Barbados. Such seminars are usually well attended.

## Wildlife Sanctuaries

While no natural-habitat wildlife sanctuaries exist in Barbados, two concerns, functioning primarily as tourist attractions, provide some measure of protection for wildlife, serving at the same time as prime tourist attractions. Both receive concessional support from government in a number of areas. All activities promoting and supporting tourism are given special support by Government.

## Focus on Trees and Forests

The strategies and programmes followed by the government through agencies, such as the Soil Conservation Unit and the NCC, over time, have impacted both directly and indirectly on the landscape of Barbados. There has been a significant increase in shade trees around private homes and state buildings, along highways and throughout urban districts in recent times. More important has been the reduction in soil erosion and landslides attained in some areas of the Scotland District with the establishment of forest cover on lands which were previously prone to severe erosion and landslip.

Greater availability of funds, technical expertise and other resources have allowed Government in Barbados, to deliver more support to the forest sector than any other local agency or organization. The local NGOs too, and other organizations through actual project implementation, lobbying and the media, are making vital contributions to the enhancement of this sector.

# 3. ISSUES AND PROBLEMS

An analysis of issues and problems related to trees and forestry in the local context, has thrown forth major problem and discussion areas centred around :

- Removal of coastal trees for sand mining;
- Physical development on fragile and critical ecological sites;
- Deforestation and over grazing on erosion prone lands;
- Landslip stabilization in forested areas of the Scotland District; and
- Plans for the filling of an existing mangrove.

## Coastal Vegetation and Sand Mining

From the inception of the local construction industry, sand-mining operations have been occurring in the Scotland District within or very close to, and have impacted on littoral habitats.

As the tourism and construction industries expanded, the demand for construction sand also increased, posing serious threats to coastal stability and the environment through the removal of coastal vegetation for the mining of the dunes and near shore sand hills. Such action obviously increases the risk of coastal erosion and ultimately threatens prime beach lands.

The issue of sand mining and the problems associated with this activity was highlighted in the early 90s. The problems became very serious by the mid 90s, exacerbated by the indiscriminate removal of sand from some of these areas. In 1997, various environmental groups expressed great concern at such occurrences which were seemingly going unaddressed. The issue was eventually taken up by the local media. The front page of one mid week newspaper read - "BNT Warns of Environmental Disaster Resulting from Sand Mining", another paper "A heavy price to pay for development". The issue was also featured as a leading story on the evening news television.

Despite protests and intense media coverage, sand mining continued as usual, clearly demonstrating that the resource was a priority, with politically environmental groups not strong enough to influence this policy in any significant manner.

From a political stand point, the subject did not escalate into a political issue as the area being mined is relatively isolated, and the physical operations of such activity have not disrupted the life patterns of any of the surrounding communities, and affect less than 1 percent of the population.

Another reason for the groups' failure to impact meaningfully on the continuation of such activity, stems from the fact that sand has a direct impact on construction, which in turn affects tourism and ultimately employment, politically and economically sensitive areas. Furthermore, none of the concerned or agitating groups proposed an alternative solution to alleviate the problem.

The problem being experienced has brought into focus the issue of balancing conservation and ecological interests with economic interests, as the importance of this resource is critical for the construction industry. In the final analysis, economic forces will perhaps over-ride ecological and environmental considerations. The only hope for remedial action in the circumstances seemed to reside in the thought that the resource is only finite and that the area will naturally subside as most of the sand is removed to facilitate "development" programmes. Government is, however, well aware of the issue and the potential problems, and lately, large quantities of precast material is being imported to assist with the construction of large structures.

The forestry Section of the Ministry of Agriculture and Rural Development is also currently preparing a reforestation plan for the affected areas with the primary aim of rebuilding the sand dunes. Simultaneously, alternate mining sites are being identified for development by various governmental agencies. Exploitation of these sites would also involve substantial tree removal and environmental impact.

## Physical Development

The scarcity of land resources and the increasing need for the housing and tourism development are destroying special habitats and ecological zones along the coastlines and in the Scotland District. Such occurrences have been having repercussions in the political, social and economic and ecological spheres as more lands are removed from agriculture, and areas of natural vegetation cleared for housing and tourism development in these areas. Its impact on trees and forestry related activities in the Scotland District is even more severe.

The removal of existing forest and tree cover to make way for housing and other residential/tourism development will increase the erosion risk and landslip hazard in the Scotland District, as soils are exposed to the direct impact of precipitation, and lead to greater destabilization of slopes and to loss of tree cover as construction loads are increased and increased quantities of water from these developments injected into unstable sub-soils. The lack of adequate control of development in this area has already led to severe landslides, destruction of trees, roads and houses, and has led ultimately to the relocation of several communities.

Special care has to be taken to address a balance between physical development and ecological and stability problems, as the government tries to bring the area more in line with development in the rest of the island. With the designation of the area as a special development area and the offer of special incentives and or ventures established within the District, the problems may be exacerbated.

Within the last decade, concerned individuals and community groups were questioning the procedures relating to development, especially the reforestation aspect.

Professionals and laymen alike are in agreement that this problem should be addressed with some urgency. For government, the dilemma lies between coping with pressures for development, the realization of national and regional development objectives and addressing concerns of the sustainable use of the environment and its resources. The reality of the situation is that housing and development continue to be a priority, in a situation where there is limited available stable land.

One current suggestion for the rest of the island is the pursuance of vertical development (apartment style) instead of the traditional horizontal development, in order to diminish pressures on, and the ultimate alienation of, lands in agriculture and forestry. This seems to be a hard sell, as traditions do not change overnight.

Current water shortages and the need to boost water capture into the aquifer have given rise to various suggestions for the placement of check dams in the various gullies to help infiltration in the rainy season. With the network of gullies housing some of the most valuable collections of species of flora and fauna on the island however, flooding of sections of these for any length of time could result in the loss of valuable germplasm and ecosystems.

## Deforestation and Over Grazing

The 1989 Agricultural Census revealed most of the livestock farmers in Barbados to be landless, in some cases with single farmers having as many as 20-30 animals (cow, sheep, goats) running wild. This problem stems from the fact that a large segment of the livestock farming population throughout the island are landless with small herds, and technically do not possess land on which they can graze their livestock. Such persons must, however, make a living and support their families and use livestock as a means of support.

Increases in the animal population of landless farmers throughout the island have resulted in severe damage to agricultural and forest lands. Large acreages of tree plantings made by the Soil Conservation Unit of the Ministry of Agriculture and Rural Development in the Scotland District area between 1957 and 1997 were destroyed by overgrazing and stray livestock. It was not until around 1992 that this problem became so acute that it became a national issue. Agricultural farmers were losing thousands of dollars annually from crop damage, while areas relatively susceptible to soil erosion were being stripped of critical vegetation cover.

This matter was ventilated on radio, in the print media and on Talk Show programmes and representation made by farmers to politicians. Mounting pressure for redress of this situation led to the passage of the Livestock (Control of Strays) Act 1993, and the formation of a special team based at the Soil Conservation Unit for the capture and impoundment of such animals. There was some initial outcry from the traditional landless farmer accustomed to this free grazing system. The problem has diminished over the past few years with the introduction of the special unit.

Landless livestock farming, however, still exists and continues cause damage to trees and the environment. Common ground must be found in this situation to enable protection of the resources invested and to address, at the same time, the problem of overgrazing.

## Impact of Land Slides

The Scotland District covers approximately 1/7 of Barbados and contains most of the natural remaining floral habitats on the island. It also contains more than 70 percent of the Island's forest cover. This is also an area where landslides, erosion and anthropogenic factors have impacted negatively on forest and tree resources, exacerbated by the geological makeup of the area and the steep terrain, intensified by the influence of heavy rainfall and spring flows. Trees and forests have also been instrumental in stemming problems associated with these phenomena.

The Soil Conservation Unit (SCU) was established some 40 years ago. Its function was to seek solutions to such problems and to stem the deterioration occurring in the District. Additionally, it was to restrict and control any form of activity that might threaten the stability of the Scotland District. Expanding settlement, apart from overgrazing, constitutes one of the major threats in this regard. The Unit has therefore assiduously battled to control the development or expansion of Settlement Communities within the District, particularly on the ridges and other unstable lands. Increases in domestic water connections, and waste water disposal systems from increases in the housing stock and livestock populations, result in the destabilization of areas and further threatening the stability of forest ecosystems located on and down-slope of such areas.

In the early years of operation of the Soil Conservation Unit, the criteria for allowing housing settlement was based on considerations of density and land stability. The then Law empowered the forestry department (SCU) through the Chief Agricultural Officer or his agents, to deal directly with all issues relating to settlement and stability within the District. In order to resolve occasional divergences in views and approaches between politicians and forest officials on technical and policy matters, the Act was amended in 1993, and now gives the Ministers the right to make the final decisions on such matters.

While landslides continue to be a serious problem within the Scotland District, it has hardly become a public issue as the average Barbadian often views these occurrences as acts of nature. Today, non-rationalized settlement, inappropriate housing development, inadequate funding, shortage of specialized personnel and training are some of the biggest threats militating against adequate treatment of the problems faced by forest ecosystems within the Scotland District.

## Filling of Mangroves and Wetlands

In Barbados today, there are only some five areas of wetlands and mangrove systems remaining. All are in need of special protection, as most are located within the tourist belt, which constitute the preferred areas for touristic plant development. Only recently has there been acceptance by Government of a proposal to fill a section of the wetland (16 ha) at Chancery Lane in the coastal area on the south east of the island to make way for touristic development. The move was met with mixed public reaction. While local environmentalists consider the move as placing the final straw on the camel's back, considering that this area is one of the very few remaining natural habitats on the island, subsequent to dengue outbreaks over the last few years, some Barbadians view the move positively as they regard it as a move towards the elimination of a potential breeding ground for the deadly mosquito.

During the latter part of 1997, radio talk shows focussed primarily on dengue eradication when discussing this issue, glossing over the importance of the wetland properties. A number of callers, especially those that had experienced the deadly disease, supported any possible action taken to eradicate the organism, even if it meant destroying the wetlands, with one caller highlighting the possible dengue threat to tourist, and the tourism industry.

General public reaction supported the decision of the planning department although the move to fill the wetlands initially had nothing whatsoever to do with dengue, but was conceived as a project to facilitate hotel/ tourism development. Generally, any move to develop tourism is always seen politically and economically, in a positive light and is hardly ever opposed.

Local environmentalists have used the different media to protest such moves, arguing against the sacrifice of environmental and ecological benefits for economic gains with negative long-term consequences, as has been experienced in other countries. These have, however, borne no fruits, and seem to echo the recent pronouncement of one Cabinet Minister that "any move to stop the development of the tourist industry is like killing the goose that is laying the golden egg". Although Chancery Lane so far remains untouched, it is still awaiting a final date with the developers.

# 4. PROCESSES AND MECHANISMS OF POLICY FORMULATION

In Barbados, the following sequence is followed for the Legislation of national policy relating from any forthcoming issues. For example, in relation to the matter of integration of a National Parks policy and area, the current study being undertaken stems from concern expressed by environmentalists, professionals and other environmentally conscious persons and groups in the society, over the destruction of several natural habitats across the island and the loss of areas for relaxation and enjoyment by the Barbadian public, to facilitate economic activities. Most Barbadians supported the idea of declaring the amalgam of remaining areas under threat through their incorporation into a National Park System, as protected areas. Some members of the public have even asked,

Government to put an immediate end to all unsound environmental practices and legally declare the Scotland District a protected area.

As a result of the lobbying, and in keeping with the aim of preserving these areas while fostering appropriate development, a study aimed at addressing the relevant issues and to integrate the National Park was commissioned by Government. The study is now in progress. The study incorporates national and non national experts. The majority of experts are non-national and non-CARICOM as the required expertise seems to be relatively scarce in the region.

Such studies are usually followed by the preparation of a paper (Cabinet Paper) for the consideration of the Cabinet. Such papers would, as a general rule, address existing problems, look at alternatives, viewing the proposed actions and programmes from a social, cultural, economical and environmental standpoint. Possibilities and eventualities would be forecast and a practical and sustainable programme and plan of action, acceptable from the political, economic, social, cultural and environmental viewpoints would also be presented.

The Paper would then be forwarded to Cabinet, at which level decisions would be made as to acceptance and/or changes to be made, if any. Cabinet's recommendations are then sent back to the originators (Line Ministry/Consultants) to inform them of the decision taken by that body. If the proposals submitted in the Cabinet Paper are acceptable, the document is sent on to the Office of the Attorney General, Minister responsible for all legal matters, for drafting of the required legislation and regulations, as necessary.

Where Cabinet has difficulties or divergences of outlook with the recommendations of the proposals submitted, particularly politically sensitive aspects, the proposals are returned for modification or a third party is called in to review the study. After such, the matter would be re-submitted to the Cabinet for consideration and for continuation of the process. Referral to third parties, however, is often avoided as it is always costly and time consuming.

If the Cabinet agrees with the recommendations and proposals, drafting of the necessary legislation starts at the Office of the Attorney General. On completion of the drafting, the drafted document is returned to the Line Ministry/Consultants for perusal to ensure that it captures the essence of the recommendations. If the Drafting is adequate, the document is sent back to the Office of the Attorney General from whence it is forwarded to Parliament (a political body elected by the people through the democratic process of voting). In Parliament, the proposed Draft Legislation is debated (read) three times. It then goes to the Senate (Politically selected), where it is again read three times. After the final readings in both houses, a vote is taken on the matter. Passage is by majority vote. The legislation is then signed by the Head of State (Governor General), published in the Official Gazette, and the policy becomes legal and binding.

## Monitoring and Evaluation

The operating agency in whom the legal power of execution is vested, is normally given the mandate for monitoring and evaluation in the relevant domain. Local and environmental interest groups also play an important role in precipitating corrective action through their vigilance, pressuring for corrective measures whenever the need arises. Local populations and interest groups which initiate action for the promulgation of policy positions or legislation also continually exercise such vigilance.

Where a more scientific monitoring and evaluation is required, Government may at times draw up (draft) contracts requiring Consultants to effect annual evaluations and brief Government on performance and required remedial actions.

# 5. FORESTRY POTENTIALITIES

Barbados has been classified among the most water scarce countries in the world. All of Barbados' potable and irrigation water supply is derived from underground sources, which has to reach the underground aquifer through a process of percolation through a thick limestone cap which covers over

75 percent of the island's land surface and is devoid in the Scotland District. Rainwater has to be detained on the surface long enough to permit its percolation and entry into the groundwater supply to recharge the aquifer.

Subsequent to the removal of the initial forest cover, sugarcane played a significant role in detaining runoff, permitting percolation such water through the limestone cap to enrich the quality and quantity of available ground water. Many wells were placed strategically through these fields to help with erosion control and drainage problems, and to assist with water infiltration. Over the last four decades, however, housing, tourism and other physical development have led increasingly to the conversion of many of these fields into housing lots, industrial estates and highways.

Such developments have now led to situations of heavy runoff and the removal of large quantities of soil and organic surface litter have blocked infiltration (suck) wells preventing valuable water from reaching the aquifers. With diminished infiltration due to inadequate vegetation cover, increased runoff has resulted in increased flows into the gullies and to flash flooding. From such flows, top-soil, fertilizers and pesticides are discharged into the near shore marine environment, affecting marine populations and damaging the tourism product.

Trees and forest cover have an integral role to play in ameliorating the negative trends and impacts. They can be instrumental in reducing the amount of runoff, allowing a much greater quantity of water to enter the groundwater supply, thus increasing availability, and diminishing the negative impacts on the marine environment, and need to be seen in that light.

While it is estimated that some 14 percent of the country's land surface is under tree cover, forest cover as such accounts for only 4 percent. Compact clustered or continuous stretches of trees of any extension are for the most part, located in the Scotland District. The remaining trees are scattered in villages, around residences, fields and in the urban and built environment throughout the rest of the island.

In the economic realm, in 1994, wood and wood product imports amounted to Bds$11.8 million. They amounted to Bds$11.5million in 1995 and 19.5 million in 1996. This represents a relatively substantial expenditure for the country on such products. However, from the previous description of the country's forestry resources and usage of forestry products, an examination of the reality shows severe limitations in the scope for the development of any substantial wood based forestry industry.

In terms of commercial forestry, only one local timber species (sweitenia, mahogany jacq) seems to be in any great demand in the local market. It is used basically in the construction of boats for the lucrative fishing industry, and for the manufacture of furniture and handicraft. Furniture and souvenirs made from this product usually fetch very high prices locally and regionally, and are often referred to as antiques.

Despite the fact that local mahogany has great potential for use and handicraft industry, two major problems for the realization of its potential pr a large percentage of the mahogany population is at the senescent stage for commercial purposes. Secondly, most of the persons with the te wood are in excess of fifty years of age and very close to retirem are few and far between, a trend which does not seem to augur in this area.

Forestry and trees in Barbados also offer great potential for paths and nature trails have already been developed fo District. Economic activity in this area has already begu seems to have great potential for this type of activi anticipated as the proposed national park moves closer

Small scale scientific and research work is also t woodlands in the near future. Two projects are curr the University of the West Indies who will be apicultural research project which involves a cc natural forest lands with that being produced in o

A red mangrove wetland at Graeme Hall, Christ Church, recently purchased by a private individual is slated, unofficially, to be used to conduct both economic and scientific activities Few official details have however been forthcoming about the purchaser's intention. The impact on, and benefits from, such proposed activities on the area cannot, therefore, be gauged until the actual plans for use of the area are divulged. It is possible that development at this site may impact negatively on the existing red mangrove population and habitat.

# 6. INSTITUTIONAL ARRANGEMENTS

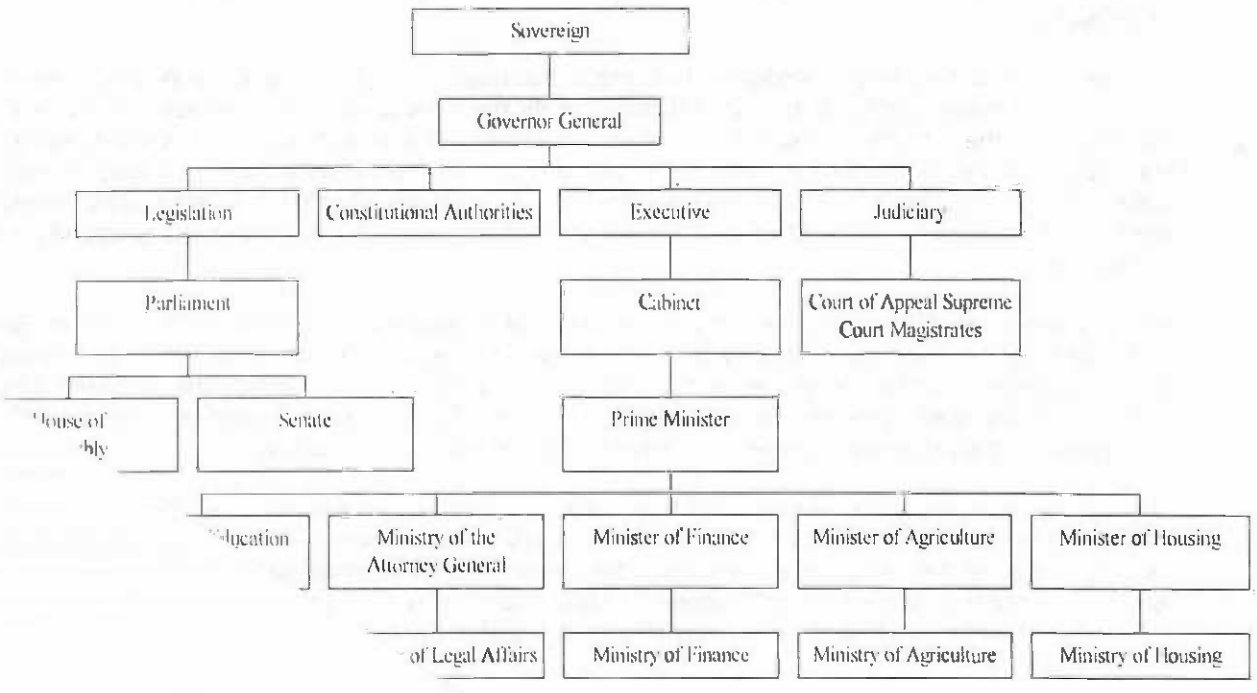
## System and Structure of Government

Barbados operates under a system of Parliamentary Democracy, which has been in existence for over 350 years. It is the only Caribbean state that remained solely under British rule from the time of discovery in 1675 until its independence in 1966. The system Government in Barbados is basically a photocopy of that of the British Parliamentary System. During the wars of the 17th century, several Caribbean and Central American Countries changed parent nations. In some cases, French territories were captured by the Spanish or by the Dutch, by the British or vice versa. This has never been the case of Barbados.

## Forestry Related Institutions

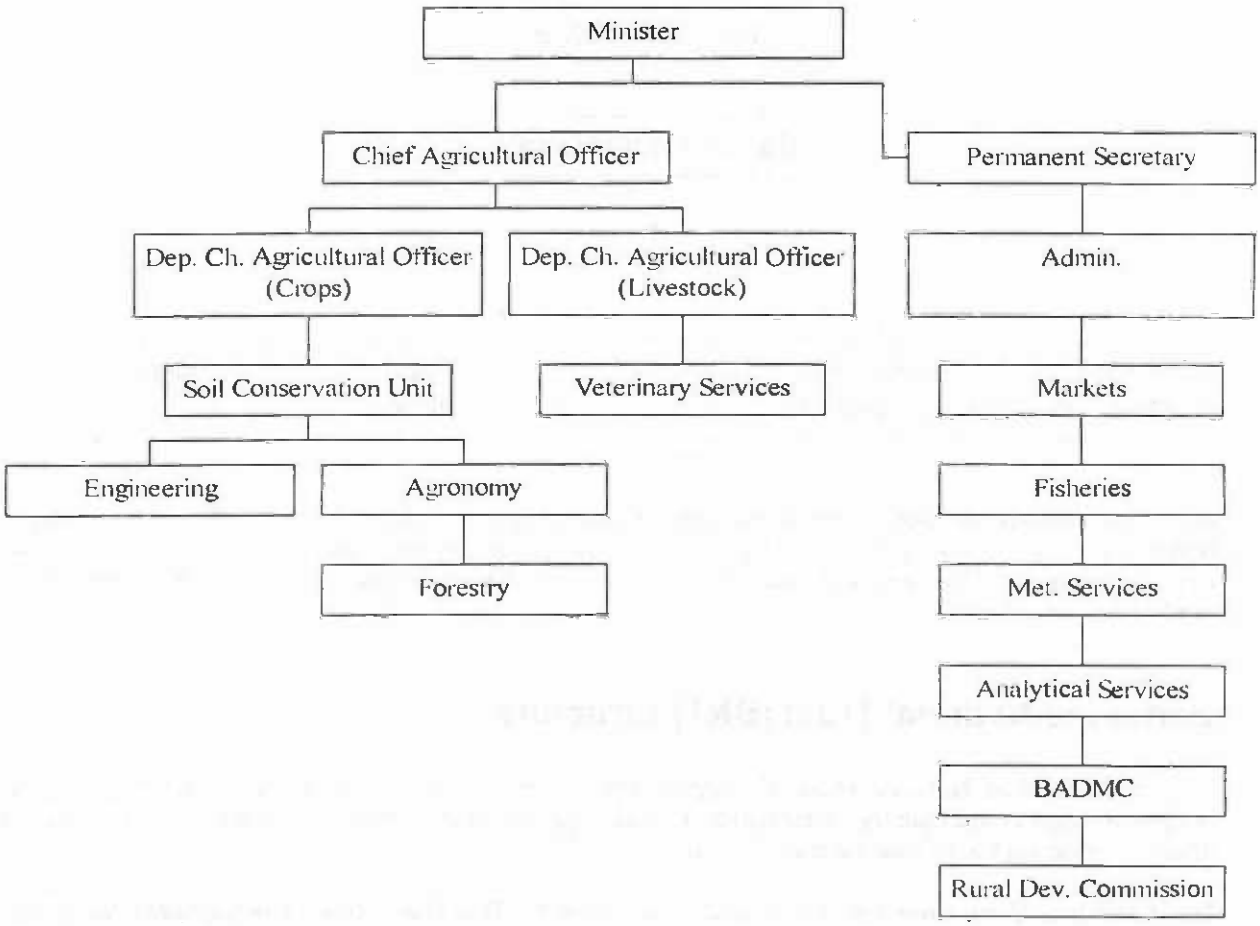
Figure 1 displays a general picture of the Structure and organization of Government in Barbados. Figure 2 looks specifically at the structure of the Ministry responsible for forestry related activities. Figure 3 delineates the area of the Scotland District, whose conservation mandate falls under the Soil Conservation Unit, the department responsible for forestry matters in this region.

***Fig. I Government of Barbados - Organizational Chart***



Close analysis of Fig. 2 clearly reveals that forestry ranks relatively low within the government organizational and priority structure, which can possibly reflect the major reason why so far any forest policy has not yet been formalized. The planning, organization, coordination, control and even execution of government forestry activity are all determined by the agronomic policy of the Soil Conservation Unit.

***Fig. 2 Ministry of Agriculture and Rural Development - Organizational Chart***

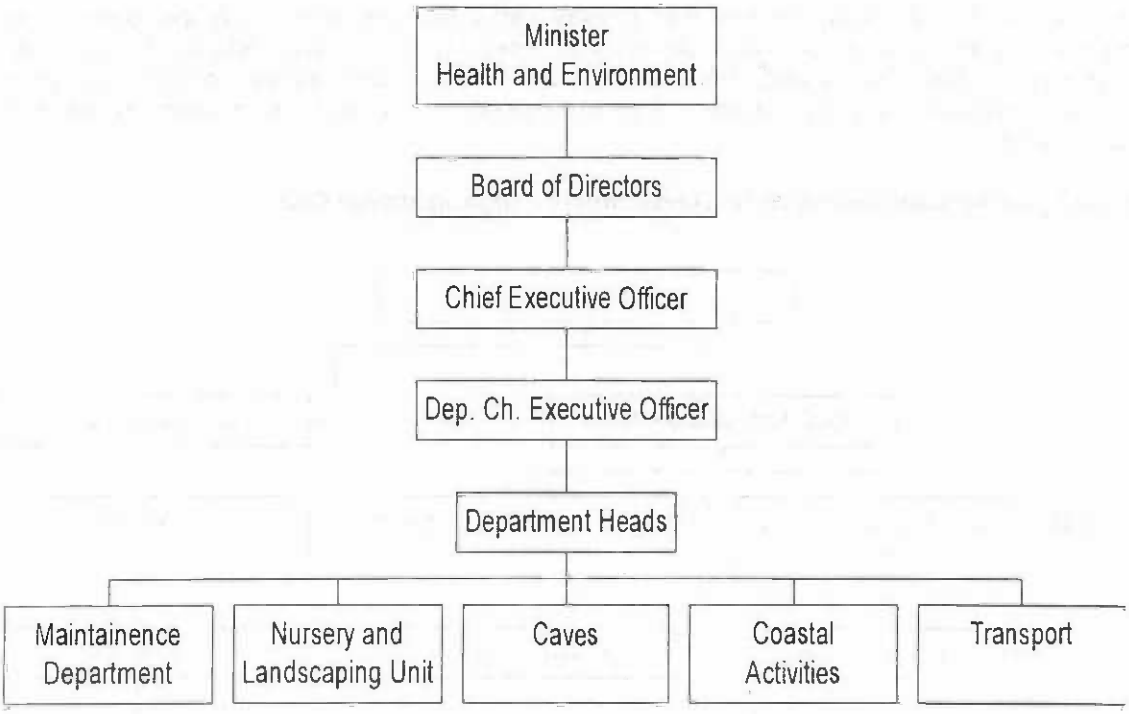



## NCC Structure

The NCC is a special unit housed within the Ministry of Health and the Environment (Division of the Environment). Its mandate includes conserving the natural beauty, topographical features, sites and monuments and the removal of derelict objects from any beach, public parks, caves or public gardens.

Initial operations of this organization were fully funded by government. Most of the programmes undertaken were socially oriented. In recent times however, this organization has been able to shoulder some of its financial costs by adopting a more commercial approach to its projects and programmes.

Landscaping and maintenance activities and the operation and management of visits to underground caves which cater predominantly the tourist market, are generating some 2.5 million Barbados dollars annually. Such earnings are, however, far below the 17 million dollars allocated annually by Government for the running of this organization.




As Government moves deeper into a restructuring programme, a number of state owned organizations (including NCC) are being asked to find possible ways to reduce expenditure and, at the same time, increase revenue. This unit is projected to cover most of its expenses through viable sustainable within a few years time.

## Barbados National Trust (BNT) Structure

The mandate of all National Trusts throughout the Caribbean region relates to preservation of the unique heritage in the country; preservation of buildings and places of natural beauty; and monitoring activities affecting the islands flora and fauna.

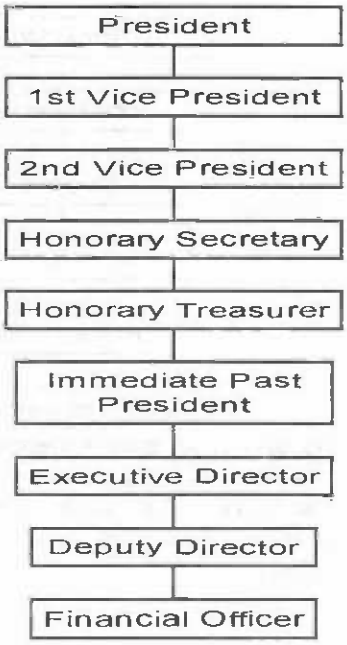
The Executive Committee and the council work closely. The Committee is responsible for policy decisions which must be then sanctioned by the council before enactment. Most of the members serving on the Committee also sit on the council, which is organized as follows:

Its organizational structure is as follows (Fig. 5):



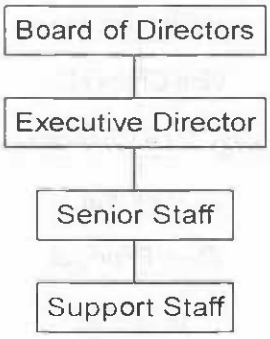
The day to day operation of the Trust is carried out by the Executive Director, with the assistance of support staff (Fig.5).

Financing of activities of the BNT comes from Government subvention, membership dues, fund raising activities, and some international grants. With just enough funds to meet operational expenses, the Trust continues to function quite effectively.




## Caribbean Conservation Commission (CCA) Structure

The CCA, similar to the BNT, is a regional body having a focal point in each Caribbean state. This organization normally works closely with other NGOs having the same interests. Its general role is quite similar to that of the National Trust - to preserve the natural and cultural heritage of the Caribbean region. The organizational structure is seen below in Fig. 6:



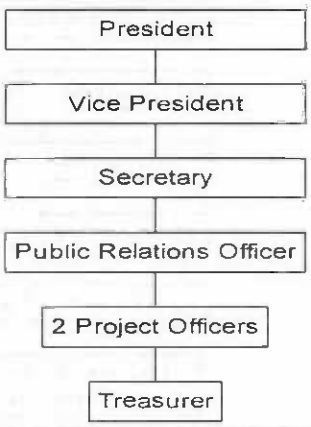

The above structure, while not as complex as the others shown so far, provides for good management. The Board of Directors is usually very knowledgeably and experienced. The Board of Directors formulates policy to be subsequently implemented by the Executive Director, who also has the responsibility of management. The senior support staff assists in policy implementation.

Financial support for this organization comes from donor agencies, membership dues etc, but a majority comes from Government subventions. Although limited funds continue to be a severe constraint, the CCA is still renowned for the quality of its work.

## Barbados Environmental Association (BEA)

The role of the BEA slightly differs from that of the others. Its basic focus is towards promotion of public awareness and environmental education; and conducting research on environmental issues.

It has no regional linkage so it only addresses environmental issues affecting Barbados and the Barbadian public. The structure is quite simple consisting only of an Executive Committee responsible for both policy formulation and implementation Fig 7 below shows the structure:




The organization is about the only local environmental NGO that does not receive a Government subvention. Finance comes from membership fees, private sector assistance through covenants and fundraising activities. Over the years, it had been very outspoken on two essential forestry issues, illegal dumping in woodlands around Barbados, and Government's reluctance to declare the natural forest at Turner's Hall a protected zone.

## University of the West Indies (UWI)

The university's mandate is to "unlock the West Indian potential for economic and cultural growth by high quality teaching and research, aimed at meeting critical regional needs". While forestry does not form part of the UWI's Curriculum, several other closely related sciences are taught at both the degree and diploma level. Identification of diseases affecting forest species is quite often done by the biological department of this institution. In addition, a number of staff members from this organization sit on several committees involved in tree planting and related environmental programmes. The organizational structure is as follows (Fig 8):



The Biological department is highlighted on the chart. Students from that department involved in ecological studies from time to time conduct practical sessions in woodlands around the island. The institution is funded basically by regional Governments with a small contribution from extra regional sources. This, however, is quite negligible and has decreased in recent years.

# 7. POLICY STUDIES

Within the last decade or so, there have been only two sets of documented studies done as a basis to inform policy on forestry and forest related matters, namely the FAO funded Tropical Forestry Action Plan (TFAP), carried out in 1991, and a study involving the Green Monkey (cercopithecus aethiops sabacus) done in 1995.

The team involved in the study of the Green Monkey comprised personnel from Fulbright University (USA), staff members of the UWI and Mr. Jean Baulu of the Wildlife Reserve. The objective of the 1995 Green Monkey Study, was basically to quantify agricultural crop damage caused by the primate. During this project, over 200 interviews were conducted with agricultural farmers throughout the island. The study was focussed on evaluating the extent and spread of the monkey population, damages caused, the types of farmers being affected, specific crops being affected, financial losses etc.

The feedback from this study indicates that trapping methods currently being used are keeping the primate population at a relatively steady level and that the threat to the agricultural crop production has not increased significantly.

A similar study conducted in 1979, estimated crop loss, at that time, at US$11 million annually. This figure has risen today to approximately US$13 million annually. This increase in crop loss over the 15year period may be attributed to two major factors:

- The primate's population increase which averages approximately by 4.5 percent per year; and
- The continuous reduction in forest cover, the monkey's natural habitat which is forcing the animal to find new niches and sources of food.

There may be plans in the near future to use trapping methods similar to those currently being used on the monkey population for the control of other animals which are destroying crops within the Caribbean region.

# 8. RECOMMENDATIONS AND CONCLUSIONS

Some of the critical areas where urgent attention is required are:

- Sustainable Development and Conservation
- Ecosystem and Watershed Management
- Training and Public Education
- Legislation and Institutions
- Intercommunications

## Sustainable Development and Conservation

An Environmental Impact Assessment (EIA) should be mandatory prior to the implementation of any physical development project, as most of the damage resulting from those projects are irreversible. In this regard, the following guidelines should be obtained:

- Development should always be effected within the range of the available resources to avoid over exploitation which could lead to permanent environmental damage;

- Government priorities and commitments should always have an environmental component embedded in policy, especially with regards to settlement on fragile ecosystems;
- Wildlife habitats should be re-established through various reforestation programmes, with the primary aims of reducing physical annual agricultural crop losses, and simultaneously reducing damage to the physical environment;
- Consider the economic, social and cultural impact of biological extinction;
- Safeguard forest germplasm through the establishment of seedbanks, botanical gardens, nature reserves; national parks etc.; and
- Access state funds to be used for establishment and expansion of wildlife sanctuaries giving priority to those housing native species.

## Vegetation and Watershed

Currently, water shortages are having severe impacts on the main economic sector (tourism and agriculture) yet, reforestation is still not seen as the long term answer to the problem. The immediate response to such problems should be to:

- Increase the forest cover on the limestone cap by encouraging intensive planting along highways, in residential areas, towns and cities, public building, hotels and other areas it is thought to be necessary.
- Increase the number of suck wells and clean those that are in existence to maximize infiltration while slowing runoff through the influence of forest cover developed in the areas identified;
- Select multi-purpose species e.g.- species with compact crowns, fibrous root systems that bind the soil, species that tolerate both drought and floods and possesses aesthetic qualities.
- Preserve the remaining mangroves and wetlands as the slow seepage from those wetlands help recharge aquifers. Wetlands also provide water for agricultural and industrial use placing less pressure on the domestic supply.
- Have more dialogue with the forestry unit when planning or commencing any form of physical development, especially if this development involves deforestation.

## Training & Public Education

Both of these areas are essential to the development of the limited existing forest resources. Caribbean states, especially Barbados, have failed to adequately address the issue of training. There are no current plans in the region to initiate a forestry programme at the professional level, and the few technical schools in the region are rather dormant from the lack of funding.

The success of public education on the other hand, depends on the quality and quantity of trained personnel available to design and effect such programmes. There is, therefore, an urgent need to:

- Establish a regional forestry school at the professional level;
- Revitalize the existing technical schools in the region through the appropriate funding;
- Introduce forestry as it relates to the environment as part of the secondary school syllabus;
- Organize regional and inter-regional meetings to discuss crucial issues and problems affecting forested habitats;
- Increase the amount of local seminars, and forcing them at a level where the general public understands;
- Use the various media to promote a variety of forestry related programmes that may have long and short term benefits for Barbados; and
- Develop and exhibit colourful, showy posters and pamphlets of local flora and fauna in educational institutions, government buildings, business areas and other areas frequented by the general public.

## Legislation and Institutions

Legislation and the effectiveness of institutions related to matters of forestry are influenced significantly by the quality and quantity of trained personnel available in any country. In Barbados, the lack of expertise in the area of forestry has resulted in poor and defective legislation and to the placement of persons in jobs for which they have no training. This has exacerbated matters.

As the millennium comes close to its climax, there is an urgent need for the following:

- Revision and amendment of most of the existing Acts relating to forestry to enable them to address the dynamics and requirements of modern forestry;
- Treat conventions with respect similar to that given to local laws;
- It should be required by law, that any person(s) selected to form policy for, or managing an institution having a forestry related mandate, should have either a sound technology or professional background in forestry or a forestry related area;
- It should be mandatory for all organizations in Barbados directly or indirectly linked to forestry, to standardize a staff ratio between the professional, technical, semi-technical and the general level;
- Apart from having an annual forestry budget, forestry related institutions, by law, should be allocated a percentage of the environmental levy collected annually in Barbados for reforestation and related activities; and
- Amendments to existing legislation should seriously address the issue quarantine of used products, considering past experience.

## Clarity in Definition of Institutional Roles

Clarity in the definition of institutional roles and responsibilities is urgently required at both the national and regional level. Personal experiences have revealed a very serious problem existing in this area in Barbados. While preparing the current document, great difficulty was experienced in the sourcing of information, as it seemed that most of the Government Departments did not understand their role. In some cases, there is overlap of jurisdiction of two or three on the same or similar issues, while in other cases relevant issues remain totally untouched.

A most interesting experience was recorded in an interview with engineers executing a road construction project in the Scotland District. During the road alignment, some 90 metres of trees parallel to the trajectory of the road were removed and 20 casuarina trees felled, supposedly to facilitate construction of a stretch of road of dimensions 5.1x6.1 metres. On inquiring of the necessity to have removed the entire line of trees 90 meters in length to facilitate a six meter width, the reply was *"do not ask us, check with the Town and Country Planning Department or the Ministry of Agriculture and Rural Development (MAR), they are the ones responsible for trees."*

In a check with the Town and Country and Planning Department, I was directed to "contact the MAR", as the matter would fall under the Trees Preservation Act. In contact with the MAR, an official indicated that the issue did not involve that Ministry as the matter fell under Section 27 of the Town and Country Planning Act. A subsequent return to the Town and Country Planning Department again indicated that I should again "check back with Agriculture" and that the issue fell under the Soil Conservation (Scotland District) Act Cap. 396.

A similar experience was recorded during interviews with the Ministry of Legal Affairs and the Ministry of Finance in trying to clarify the matter. After hours of turning around, I discovered that none of the above Ministries had responsibilities for the matter, under the Constitution.

## 9. REFERENCES

TFAP - Document 1991
Personal Interviews
Information collected from local media

# FOREST POLICY OF BELIZE

by E. D. Green

## FOREWORD

The Food and Agriculture Organization, in cooperation with the Commission of the European Communities, is conducting a study to support the Governments of the Caribbean Countries in defining, updating and modifying the national forestry policies in order to increase the contribution of the forestry sector to national economics and social development through the sustainable utilization of their forest resources.

Countries expected to participate in the exercise include Antigua and Barbuda, Bahamas, Barbados, Belize, the Eastern Caribbean Small Islands, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago. The overseas territories of the European Union Member States in the Caribbean region such as Aruba, Netherlands Antilles, Anguilla, Cayman Islands, Turks and Caicos Islands and the British Virgin Islands.

This Forest Policy Study is expected to address three main areas:

1. Is there a policy statement?
2. Does it need revision if it exists? and
3. What is the contribution and reality of "Forestry Potential" in the country and in the region?

## Methodology

An exercise similarly described as **"A Study Of Belize Forest Policy"** was completed in 1996 for The Central American Council For Forests And Protected Areas (CCAB-AP). Following a period of interviews with organizations and individuals (both government and non-government), progress meetings, compiling the information, workshops using attendants' participation, preparing and reviewing a draft report, a final report was produced under the title above. The main objective of that exercise was to examine the effectiveness of the country's forest policy to manage its forests on a sustainable basis.

This current report being prepared for the Food And Agriculture Organization is intended for a different purpose than that prepared for CCAB-AP, so that report was considered as only one of the references for this new one. The approach used for this later "Study Of The Forest Policy Of Belize" is more of an individual effort. This exercise was initiated by visiting offices or private collections to search for any reports that were seen as relevant to the topic, in particular, trying to find information about the forestry sector that might have been overlooked in earlier efforts. Material obtained through this process was compiled to form the basic outline of the report. The records maintained at the Belize Archives Department headquartered in Belmopan were particularly useful with information about the Forest Department. Some additional reports were now in print that had not yet been completed at the time of the CCAB-AP report, and these provided new information directly related to the forest sector. This phase was supplemented by interviews with representatives of those organizations in private business and community development work which were impacted by or impacted on the forestry sector, but again efforts were made to interview persons who had not been approached earlier.

Finally, in the interest of time, a few selected individuals in government and the private sector were invited to review and comment on the draft for errors, gaps or misinterpretations, before preparation of the final document. This proved to be more difficult than anticipated, because the individuals had not been asked for their assistance in advance, and when the draft was ready for their input, these key persons were frequently out of the country on official business.

# 1. INTRODUCTION

## 1.1 Geography

Belize is a mainland country having historical relations with the islands of the Caribbean; but also regional ties with those Latin American countries of the Central American isthmus. Geographically it is aligned North/South on the East Coast of the Yucatan Peninsula with the Caribbean sea on the East, Mexico on the North and Northwest, and Guatemala on the West and South. Total land area is about 22960 square kilometres (8855 square miles) with over a hundred offshore territorial cayes or small islands. With its sub-tropical climate, rainfall averages 2700 mm per year with temperatures ranging between 16 to 33 degrees Centigrade. Terrain varies from low lying overwashed offshore mangrove islands/cayes, low sandy coastlines in parts, with swamps and mangroves in other parts, through water-logged plains of pine (pine savannahs) and low shrubby forests further inland, then up into the foothills and higher elevations of the limestone Maya Mountains covered mostly with tropical rain forests and pine forests in some local regions.

Some studies identified as many as 22 catchment areas resulting from the network of rivers and island lagoons covering the country. Six ecological life zones have been identified (Hartshorn 1984), with over 4000 species of flowering plants, 150 mammalian species, 540 species of birds, and over 400 species of insects. There are healthy populations of Macaw parrots, jaguars, tapirs, Morelet's crocodiles, Atlantic and Bottle-nosed dolphins, and manatees to name just a few of the species which are still well represented in this country. The most recent estimates indicated that the country still has 79 percent forest cover, although the rate of deforestation is cause for concern (Tremblay 1996). Belize is a culturally rich country due to the mixture of the ethnic groups comprising the population of approximately 209,000 persons, with a low population density of 5.2 persons per square kilometre.

## 1.2 Economy

From a position of dominance in the 1920s where it contributed totally and completely to the economic growth of the country the forestry sector was attributed with only 2.05 percent of the gross domestic product in 1995, a contribution which is apparently still on the decline. Although this proportion is refuted by some individuals, it is still a major concern when the country has approximately 79 percent forest cover, with 37 percent declared as Protected Areas and 18 percent of the total in Forest Reserves. The economic benefits derived from this resource base is estimated to be not more significant than 2 or 3 percent of the National Product.

The major factors contributing to the diminished role the forest sector plays in the development of the country, includes the development of other industries such as agriculture (including fisheries) and tourism to name only two important contributors. This may be the result of reduced investment in the forest sector, combined with the fact that the Belizean forest estate is no longer able to produce the quality and quantity of raw materials which used to be exported to the United Kingdom and Europe. Of course the development of substitutes for many wood products and alternatives for construction methods and material have also caused prices and demand to fall on both local and international markets. Again, the extent to which implementation of forest policy in this country has been achieved successfully, may have contributed to the slow rate of development and diversification of the industry, which translates to reduced contribution to the economic growth and development of Belize. It is also theorized that the small contribution to economic growth, may be the result of a lack of general understanding of the range of goods, benefits and services which is derived from the forest resource, especially since techniques are only now being developed to be able to quantify these in economic terms.

Up until 1959, the government had continually allocated funds and resources for the development of the forest estate. The publishing and acceptance of the Downey Report of 1959 brought an end to such investments (by the Colonial Government), and since then the Department appears to have been

relegated to the role of caretakers of the estate, depending solely on annual allocations under the national budget (for maintenance of annual operations), which has not been increased at the same rate as the demand for services. There have been occasions of additional influx of funds from other countries through the implementation of bilateral projects, and some local funds for new projects requiring capital investments.

## 1.3 Resources

Belize has always been described as having a large proportion of its territory under some form of forest cover; some publications have quoted as much as 93 percent (TFAP Report, 1989). However it is only during the last five years, that some efforts had been made to stratify or categorize the forest cover. Today, it is reliably reported that less than 20 percent of the forest cover is actually suitable for the full range of multiple use normally ascribed to a forest including timber exploitation.

There is approximately 40 percent of forest cover (of the country) that is presently in Protected Area status, this is found to be necessary because of the steep and highly erodible nature of the terrain and soils, the need to protect watersheds and catchment areas, or due to the need to protect important ecological features of either plant or animal life. At the same time, it should be realized that the low proportion of mature forest remaining and considered suitable for timber harvesting is probably due to the decades of high-grading and overcutting previously allowed due to the lack of reliable data about the condition of the forest. It is probably this same assumption of greater volumes of timber than is actually available which lead to the low level of development of the forestry industrial sector. Up until today there are still exports of raw lumber underway without any quota allocations; although the last three to four years have seen a significant change in the ratio of manufactured (value-added) products to raw lumber that is being produced and exported. There is still need for more accurate and complete information about the quality of the resource base before better management development strategies can be applied to further the continued improvement of the industrial sector.

## 1.4 The British Honduras (Belize) Forest Policy

The official national forest policy statement which describes the national forestry objectives for Belize can be summarized very briefly as follows:-

> "To create, maintain permanently, and develop a national forest estate taking into consideration the need for agricultural development and the protection of the environment."

Provision is also made for improvement of the forest; improvement of the quality of exported timber products; the promotion of good forestry practices on private land; the management of public lands other than the forest estate; the promotion of public awareness about the value of forests; and the presence of an adequately staffed and financed department to implement the policy.

This policy statement has been in place since 1954, and all analysts to date have concluded that it is an appropriate statement of national forestry objectives, considering the absence of provision for biodiversity protection. It is recognized that issues which have arisen within the last decade, such as the need for greater and more effective protection of plant and animal species, and the importance of proper land use for environmental protection, were not evident at that time. The policy appears to be generally consistent with the country's national development objectives and strategies as described in the last and the current five-year development plans (1985-1989 and 1993-1998). However the assessment of the forestry sector conducted in 1987 as a part of the Tropical Forestry Action Plan Programme resulted in observations that some of the policy objectives appeared to be to some extent at variance with actual practices. The allocation and transfer of land out of forest use was particularly noted. Other practices which appeared inconsistent with the policy objectives were such as the degradation of the forest caused by the continuous and excessive "high-grading" of a few selected primary species, the long stagnant state of the forest department, the slow development of the forestry

industrial sector, and the absence of an established agroforestry programme may all be described as inconsistent with the stated objectives of the forest policy.

Achievements which may be attributed to the successful implementation of the policy should include the extent of the country which is still under forest cover, the proportion of the country which is formally protected in forest reserves and national parks, the relatively healthy animal and bird populations, a forest department responsible for the implementation of the policy, the active presence of non-government organizations managing privately owned and state owned protected areas, and the many research projects currently underway in many different subject areas in these same forests of Belize. All these facts are significant in determining the effectiveness and the level of success in achieving the forest policy objectives.

It can be concluded that Belize has made considerable progress in implementing its forest policy to achieve the objectives, but the country is now at a stage, and in possession of enough additional information, to introduce some revisions in the current policy statement, and to more actively apply the strategies and practices to achieve the new objectives.

# 2. THE FOREST SECTOR ELEMENTS

## 2.1 The Forest Estate

The permanent forest estate is mostly restricted to the less accessible and higher lands, as well as the southern coastal plains and swamps. This is the direct result of early privatization of the more accessible and richer areas of the country. While it is estimated that the combined forest classes cover some 17,214 square kilometres or 79 percent of the territory, the present area of reserved forests is about 421,000 hectares (about 1580 square miles). Forest reserves and other private protected areas cover approximately 37 percent of the country with forest reserves being 53 percent of this area. The country's forests are characterized primarily by tall, highly diverse broad leafed forests; secondarily by pine forests in parts of the Maya Mountains and the coastal plains; low scrubby woodland areas resulting from infertile or periodically inundated lowlands; and mangrove forest within the coastal zone and on the offshore low-lying cayes (islands).

The land use classification developed by the Land Information Centre of the Ministry of Natural Resources describes five main classes: Urban, Agriculture, Range, Forest and other Wooded areas, and Unproductive Land (LIC 1994). Further division into subclasses produced 12 principal forest and woodland classes (Table 1). Together the forest classes cover 17,214 square kilometres, or 1,721,398 hectares or 79 percent of the total land area of Belize. This extent of forest estate in government ownership/management is the result of the forest reserves declared under first the "Crown Lands Ordinance" then the "Forest Ordinance", which finally evolved into the "Forest Act". No new forest reserve has been declared since the Statutory Instrument of 1992 which declared the area formerly known as the Vaca Plateau as the Vaca (Plateau) Forest Reserve. Instead the trend has been to reclassify certain areas of forest reserves and forested National lands into one of the four categories provided under the National Parks Systems Act of 1981, or to de-reserve some parts of forest reserves to satisfy demands for agricultural, residential, or tourism development. These recent reclassifications of areas have been brought about through joint or unilateral intervention of local and international organizations, in some cases, whose objectives have included the preservation of endangered or species of plants and animals at risk of being destroyed. The de-reservations have been to satisfy local government or industrial needs. A typical example is the reclassification of the entire Cockscomb Basin Forest Reserve into a Wildlife Sanctuary in 1991, after a study of jaguars was conducted by World Wildlife Fund (WWF) and it was discovered that this area of forest provided habitat for one of the only healthy populations of this animal in this part of the world.

Today the area of Belize, which is suitable for sustainable timber production, is approximately 14 percent or 305,058 hectares (732138 acres) of the total land area, which is divided almost equally between forest reserves, forested national lands and forested private lands.

***Table 1: Forest classes, areas and proportion for Belize mainland (LIC 1994)***

| *Forest Classes* | *Area Hectares* | *Area Acres* | *Area Sq. klm* | *% of land area* |
|---|---|---|---|---|
| Broadleaf forest | 1,419,000 | 3,503,704 | 1,419,000 | 65.122 |
| Open Broadleaf | 12,031 | 29,705 | 12,031 | 10.55 |
| Pine Forest | 57,625 | 42,283 | 57,625 | 2.64 |
| Open Pine Forest | 7,307 | 18,041 | 7,307 | 0.34 |
| Thickest and other degenerated Broadleaf Forest | 84,828 | 209,477 | 84,838 | 3.89 |
| Herberious & shrub, secondary growth after claring | 8,859 | 46,462 | 18,859 | 0.87 |
| Bamboo and Riparian vegetation | 11,527 | 28,462 | 115.27 | 0.53 |
| Coastal Strand | 2,483 | 6,131 | 24.83 | 0.11 |
| Mangrove, Medium and Tall | 7,820 | 19,308 | 78.20 | 0.63 |
| Mangrove Dwarf | 23,460 | 57,925 | 234.60 | 1.08 |
| Saline Swamp vegetation, palmetto and mangrove | 34,487 | 85,152 | 344.87 | 1.58 |
| Marsh Swamp | 41,963 | 103,613 | 419.63 | 1.93 |
| Total of forested areas | 1,721,398 | 4,250,366 | 17,213.98 | 79.00 |

## 2.2 The Industry

Assessments of potential annual allowable cut have been calculated at 90,000 cubic metres per year. This volume, however, includes some timber species which are currently not yet utilized in the local market in large quantities. A 1995 estimate of the total sawmill intake of logs (countrywide) showed that 61,000 cubic meters was being converted into lumber, but this exercise also revealed that the primary species, mahogany and cedar, were being cut at a rate that was three times their normal growth rate. The effect of this overcutting is already being experienced by the fact that large specimens (over 90 cm diameter) of these species are seldom found in the forest. Besides mahogany and cedar, other species which are extracted and converted into lumber include Caribbean pine (*Pinus caribbaea*), hardwoods such as Nargusta (*Terminalia amazonia*), Black Cabbage Bark (*Lonchocarpus castilloi*), Santa Maria (*Calophyllum brasiliense var. Rekoi*), Yemeri (*Vochysia hondurensis*), Sapodilla (*Manilkara sapote*), Rosewood (*Dalbergia stevensonii*), Zericote (*Cordia dodecandra*), Bullet Tree (*Bucida buceras*), Billy Webb (*Sweetia panamensis*), Jobillo (*Astronium gravolens*), and Granadillo (*Platimiscium yucatanum*). Within the last five to seven years, species such as Cotton (*Ceiba pentandra*), Guanacaste (*Enterolobium cyclocarpum*), Quamwood (*Schizolobium paraphybum*), Red Tamarind (*Pithecolobium spp*) and White Tamarind (*Acacia spp.*) have now entered the local market for use as core and surface stock in veneer and plywood manufacture. Mahogany is used primarily in the furniture industry, boat building and also in plywood manufacture, but the greater proportion of the volume produced is still being exported in lumber or veneer to Mexico and the United States. Cedar is used for timber siding (as mahogany used to be) for shingles and vats (wooden water containers). Most of the other hardwoods described, find applications as structural stock, such as studs, rafters, joists, beams and even as columns in the construction industry due to their density and strength. Although the greater percentage (up to 90 percent) of all new buildings are built of ferro-concrete mixtures, wood is increasingly applied in interior finishing detail including walls, ceilings and floors. With the introduction of kilns to dry wood, more contractors are using local timber products for interior finishing work. Drying the wood allows for better fit and finish, as well as better resistance to termite attack. At the same time, the construction industry uses wood products as moulds or scaffolds during the process of casting reinforced concrete beams and columns, although more than half of this volume of wood is reused afterwards.

Recent analysis has revealed that pine products now form the greater proportion of timber products. With the introduction of kiln drying facilities, chemical impregnation plants and smaller band saws, the harvesting of pine has become more economically viable. The growing shortage of good quality primary and secondary hardwoods has also influenced the increasing demand for pine lumber. Pine displays versatility in that it can be cut and dressed for use in all phases of building construction and it finds increasing applications for furniture and finishing material, not to ignore its utilitarian uses in

fence posts, pilings, utility poles and piers (in marine and fresh water environments)' (Andrew Mitchell, 1997).

The sawmilling industry is comprised of about six large mills with capacities averaging 1.5 million board feet per annum, operating between 10 to 12 months per year. Two of these are in the Orange Walk District, three in the Cayo District and one in Toledo District. There are about 40 other small outdated and inefficient sawmills scattered countrywide whose operations depend on the state of the weather and the supply of logs. The larger sawmills (at least three) are operating under Forest Management Licences designed by the Forest Department/Forest Planning/ODA team, allowing extraction of timber under sustained yield conditions from Forest Reserves. The majority of loggers extract logs from National and private lands. There are a large number of loggers who acquire extraction permits from the Forest Department and sell the logs to the sawmills operating in the District. These loggers are able to operate almost freely and cannot be said to contribute to sustainable forestry management, but they seem to be tolerated because of the lack of administrative and monitoring capacity within the appropriate authority, i.e.- the Forest Department. The available resources tend to be concentrated on monitoring activities of license-holders in forest reserves. The activities of these loggers contribute to the degradation of the forests when occurring on national lands, but may be considered suitable or appropriate when conducted on land planned for conversion to agricultural use, only if environmental protection is ignored. At the peak of the season, during the dry months in April and May, there may be as many as 1,200 persons employed in logging and sawmilling activities; although this can be reduced to about 400 during the rainy months when the majority of the sawmills have to be closed down due to lack of logs, and good all-weather roads.

All logging and sawmilling operations are in the hands of private companies or individual owners. Up until 1995, the Forest Department used to operate two small sawmills which were use to convert logs removed during small scale silvicultural (thinning) treatments, salvage of infected or other damaged trees, or harvestable plantation stock established by the Department some years previously. Lumber produced from these was sent to the small treatment plant in the capital city-Belmopan, or the Forest Department Wood Workshop where it was dried, dressed and used by the Department for the maintenance of its office, garage, stores, and residential buildings. A portion of the material produce was sold locally in the capital city and surrounding villages to fill a niche where there was no supplier at the time. Once other private businesses were set up to provide this commodity, the government withdrew from the market to remove the perception of competition with the private sector. The department's wood workshop facility was first opened in 1972 and had been intended to serve a training function as well as an outlet to transfer technology, introduce designs and practices: but was kept in operation until late 1997 to fill niches for products and services not offered by anyone else in the neighbourhood of the Capital, Belmopan.

Two companies are presently producing veneer and plywood. New River Enterprise Limited, factory is located in Orange Walk Town in the Orange Walk District, and the other Belize Timber Limited at Iguana Creek in the Cayo District. As a result, both these companies have constructed wood burning kilns to dry the wood used in their factories. Two other companies, who utilize "pine" in their operations, are presently setting up drying kilns to dry the lumber, the Wood Depot is located in Belmopan and the other Pine Lumber Company has its headquarters on the Western Highway a few miles out of Santa Elena Town in the Cayo District. Both these companies also operate pressure treatment plants where the pine poles and lumber are treated with Copper Chromic Arsenate (CCA) in order to extend the useful life of the wood, in terms of resistance to termite attacks. The kilns are fuelled by wood waste produced in the same factories with electrical energy obtained from the national grid to power all other manufacturing equipment. These treated timbers are now being accepted by the construction public and more homes are now being built using pressure treated pine lumber than used to occur even five years ago. Mr. Amin Bedran, the Director of Pine Lumber Company in the Cayo District, commented that five years ago when he first introduced treated pine to his customers, this amounted to only 5 percent of his total sales. Today, treated pine accounts for up to 95 percent of total lumber sales. At least two furniture making companies, both owned by independent individuals, have constructed kilns to dry their mahogany in order to reduce the waiting time before the lumber can be utilized. The smaller is an electrically powered concrete block structure using wood waste as the fuel, while the other is a large unit with wooden insulated walls but solar powered.

## 2.3 Revenue

Government revenue from the sector is generated mainly in the form of royalties, but this can be and is sometimes supplemented by the sale of confiscated forest products forfeited as a result of illegal forestry activities on the part of some operators. The royalty is a fixed rate per cubic foot of logs extracted from the forest depending on the species, varying from Bz$1.24 per cubic foot for mahogany to $0.24 per foot for some hardwoods (see Appendix VII for current rates). Recently an additional management fee has been appended to the royalty on all timber extracted from the Forest Reserves which have valid Management Plans in place, e.g. Chiquibul, Fresh Water Creek and the Mountain Pine Ridge Forest Reserves. Additional fees, such as road fees, are also included in the forest licences and permits held by all operators working in forest reserves or on national lands. Along with the introduction of the New Forest Management Licences, and built into these, came the introduction of a Compliance Bond and an Activation Fee. The first is accessed and deductions made from it in situations where the license holder has failed to comply fully with the conditions of the licence and a penalty is levied, whilst the second is a non-refundable fee which allows the license holder access into the sub-compartment scheduled for harvesting during the upcoming year. Like most of the Caribbean islands or other small countries, none of these revenues generated are returned directly to the Forest Department for the maintenance of all the public services and goods it provides. Instead, it all goes into the government's general revenue, and the Forest Department has to compete with all other Departments for limited allocations each year during the annual budget exercise. Appendix III shows the Contribution of the Forest Sector to Gross Domestic Product over the last 16-year period. These figures do not reflect the true potential derived from royalties since, while the forest department assessed the total royalty due to the Government, collection rate was determined to be below 70 percent in 1992 (Development Economist - National Protected Areas Systems Plan for Belize/Vol. 2). It is also estimated that the rate of illegal logging is high, which translates to an additional amount of revenue lost to government. Government also generates revenue on forest products in the form or an ad valorem export duty. A 1993 exercise to evaluate export volumes, species and value revealed that the material, primarily mahogany lumber and veneer, was undervalued and under quantified. The under declaration of the volumes was supposedly to reduce the 30 percent Mexican Import duty on timber going into that country, but it also impacts the 5 percent ad valorem export duty imposed by the Belizean government. The same exercise produced estimates that the loss to government in royalties and duties might be as high as 50 percent of the true potential.

Studies conducted indicate that mahogany and cedar are profitable to log and convert, but the profit margin on the other hardwoods is small. Royalty rates in Belize were determined to be equitable with those in Guatemala and Honduras, although Belize tends to have higher labour and fuel costs which obviously reduced the competitiveness of certain products.

## 2.4 Local Trade and Handicrafts

Although in some cases not considered a part of the forestry sector, but as part of the "Trade and Industry", there is a thriving furniture industry. The median is primarily mahogany even when the articles being made are pieces of upholstered furniture. Some "cabinet makers" are now using other species, such as Santa Maria as the frame for wooden chairs. Some Rosewood, Bullet (Tree) Wood, Cabbage Bark, Salmwood and Zericote timber is used in custom designed sets, and the carvings of animals, birds, boats, etc. are almost entirely of Zericote, with some Rosewood and Mahogany used occasionally. There are at least three dozen such businesses in operation countrywide and there has not been any reported cases of lumber shortage to affect their work until recently. In 1991-1992, a ban was imposed by the Ministry of Natural Resources on the export of Rosewood and Zericote lumber at the request of the then Furniture Makers' Association because of their perception that all the quality lumber in these species was off limits to them because of the unrestrained exports. However, no great activity has occurred since that time utilizing these species, as there are reasonable stocks available. In fact, both these species have been the targets of efforts to export them illegally. It is suspected that several 40 foot container loads were exported before the combined efforts of the Customs and Forest Departments foiled one attempt to ship out four containers, bringing a halt to this illegal activity. Shortly afterwards, measures were introduced jointly by the Forest, Customs and Trade Departments to prevent repeat performances.

## 2.5 Tourism

Belize is a country with about a population of about 220 000 (209 000 is the official figure quoted in the 1990 census). Tourists visiting the country therefore contribute significantly to its economic development. In fact the Government has placed Tourism second only to Agriculture in its development priority. The number of tourists visits over the period 1988 to 1995 averaging at 151,000 persons per year, serves to emphasize the impact on the entire infrastructure (Abstracts of Statistics 1996).Of this number, up to 40 percent of these tourists visit Belize for the Ecotourism experience. Besides those who only wish for the sea and sun experience, there is a growing number who visit National Parks, Forest Reserves, the Zoo and other places of cultural significance such as the Maya Ruins. It is now being recognized and acknowledged by the politicians/decision makers, that this another area in which the forestry sector contributes to the Gross Domestic Product. Unfortunately none of the economic impact of tourism is credited to this sector, although a justifiable case could be made. There is a growing trend of small lodges or family owned/operated hotels being established in communities or villages near to the forest reserves boundaries where their tourist package depend on access to and availability of the resource. Hiking trails, horseback riding, overlooks of geographic features, the wake-up calls of howler monkeys (baboons) or the very small chance of seeing a live jaguar within its natural habitat are some of the opportunities being marketed by this group of people who depend on this sector. While it has long been established that forests have recreational value, statistical data and local experience is showing what impact the opportunities a rich and extensive forest estate creates for economic development.

## 2.6 People and Non-Timber Forest Products

The most significant component of the forestry sector is most often overlooked. This is the local communities. Although employees of the government departments, NGOs, the logging and sawmill companies, the furniture makers and some tourism establishments are all part of this group, there is a still larger group who benefit from the presence of the forest estate. There are the immediate families of all those other employees. Without the estate or resources, the employment opportunity would probably not exist, and other sources of income would need to be identified and utilized.

Belize is fortunate that weather conditions do not require high consumption of fuels for home heating, but there is still a small proportion of the community who use dead branches and materials from the forest for cooking. It is almost impossible to quantify the volume of non-timber products used for this purpose. Another non-timber use is for basic building materials, such as, bush poles and leaves for thatch. This tends to be more common where villages are located short distances away from or on the edge of the forest. Even with the greater availability of other building materials, costs and traditions sustain the practice of village and farm residents using these other materials for basic shelters and storage units. Government has long recognized that these are goods and benefits which need to be sustainably managed to satisfy a segment of the population.

The sustenance and protection of biodiversity becomes more urgent when observations are made about the widespread extraction and use of medicinal plants taken from the forests. Even with improved medical services throughout the county, a strong traditional use of natural herbs and medicines remain and seems to be increasing as more people get into the business of local processing for local sales.

# 3. FOREST POLICY OF BRITISH HONDURAS

## 3.1 The Process

The current forest policy which provides guidance for the sector was first published in 1954 and remains in effect up until this date. There were efforts (by the Forest Department with the support of the Overseas Development Administration) to revise it in 1994, but the revised form is still being

considered before the process of adopting it as official is finalized. Both documents are attached as appendices to this report.

The official national forest policy for Belize (then British Honduras) which was first promulgated over 40 years ago can be summarized as follows:-

1. to create, maintain on a permanent basis, and develop a national forest estate, with recognition of the needs for agricultural development, forest products, (both industrial/ commercial and local), the protection of the natural environment and of special nature reserves;
2. to improve the forest through regeneration techniques; and to increase production from the forest;
3. to improve the quality of exported products to achieve assured markets;
4. to promote good forestry practices on private forest land;
5. to manage public lands outside the forest estate not yet used for agriculture;
6. to promote a public awareness of the importance of forests;
7. to maintain an adequately staffed and financed Forest Department to carry out the objectives of the forest policy.

An additional statement on wildlife policy declared the additional responsibility to include the identification and management of the wildlife resource.

The current national statement therefore declares a government policy of managing the established forest estate with appropriate financial support to maintain and improve its productive condition in order to increase the value of its potential and actual output; and to ensure continued environmental protection of soil and water for agricultural production and the sustenance of human welfare.

It was concluded (TFAP Report 1989) that this was still an appropriate statement of national forestry objectives, and appeared to be generally consistent with the national development objectives and strategies outlined in the 1985-1989 development plan valid at the time of the sector study. The situation is basically the same in regards to the most recent macro-economic development plan developed by the present government (1993-1998).

The process to develop a forest policy for this country can probably be traced as far back as that recommendation for the creation of a forest department for the colony of British Honduras first made in 1886, although this did not become a reality until 1936. The timbers of the colony were being harvested and sent back to England, and formed the basis for trade between the home country and the colony. The entire development of the British Honduras colony depended on the exploitation of the timber resources for over two hundred years before any diversification became evident.

The first Conservator of Forests was appointed in 1921, and his appointment was quickly followed by a request from the Colonial Research Committee for a report on the status of the forests of the colony. He, C. J. Hummel, created a draft for a comprehensive forest policy. The early administration of the department took the form of a three-man "Forest Trust" which was established in 1923. The Trust was assigned with the task of developing and maintaining the Crown Forests of the colony of British Honduras, and also with the responsibility of administering the funds provided for the purpose. The Forest Thrust Ordinance - Number 22 of 15 August 1923 served as one of the primary pieces of legislation for forest management in the country, and had been developed from the policy/mission statement drafted in the earlier Hummel report. The focal points of the 1921 statement of objectives are described below:-

1. The strengthening of the existing forest industries;
2. increasing the growth and reproduction of mahogany in selected areas;
3. The utilization of secondary hardwoods;
4. The collection of information on secondary hardwoods;
5. Building of a good road network;
6. Issue of long-term forest licenses to encourage investment and more efficient exploitation;
7. Introduce control- burning in selected pine forests;
8. Protect rosewood and sapodilla regeneration;

9. Experiment with plantations of exotic species such as teak;
10. Develop a botanical garden.

A simultaneously enacted Ordinance provided for a Forest Loan to supplement contributions from General Revenue to be devoted to forest development.

The general statement of objectives continued to guide the activities of the Forest Trust until it was repealed by legislation on 31 December 1935 when it was replaced by a Forest Department. The new department continued to operate under the same guidelines until the introduction of the 1947 Policy Statement.

The first formal policy document was published in 1947, placing emphasis on watershed protection, and introducing the protection of wildlife as a part of forest management. The conduct of forest inventories, training of staff, and public awareness/education about the forest were matters addressed in this issue. No statement was made about the creation or expansion of the forest estate, although there were several forest reserves already declared by that date.

On 31 August 1954 the Revised Forest Policy Statement of British Honduras was issued as Executive Council Instrument Number 728 (Appendix I). It was later published by the Colonial Secretary's Office on 2 September, 1954 which brought it into effect. By 1954 the government of the colony was in the form of a 15-member Legislative Assembly comprised of Official members appointed by the British Government, and Unofficial members selected from among the local elitist landowners. The introduction of local government began around 1800 with the creation of a forum known as Public Meetings, controlled by the white settlers. The free coloured people were not allowed to hold any authority in the colony nor to own any land at that time. The British magistrates were the persons in authority representing the home government. That governing body had evolved from the Legislative Assembly of 1854 although the composition and power was far different from what it is today. By 1871 there was a Legislative Council responsible for the affairs of the colony. Through the period 1889 to 1954 the Legislative Council continued to grow and to assume greater authority and power over the affairs of the colony. The two-party system originated in the early 1950s and a Legislative Assembly was formed in 1954. The National Assembly came with limited self-government and eventually Independence in 1981. Up until 1959 it was these government bodies which recognized the value of the forest estate to the growth of the country, and who continued to increase the allocations for the management of the estate until the publishing of that fateful Downey Report.

Following the publishing of the Downey Report of 1959, there were no further initiatives to revise the forest policy until after the FAO sponsored Sector Review of 1987. The Downey report stated that the colony would generate greater economic returns if a switch was made to prioritizing the agriculture industry development instead of the timber industry. The same decade of the 1950s saw another instant of negative impact on the forestry sector as a result of a United Nations study which caused the introduction of the Rural Land Utilization Act. This Act stipulated that the land-owner would incur greater tax liabilities for high forest standing on the land, so beginning the trend of "developing" land by clearing natural primary forests. The Tropical Forestry Action Plan report of 1989 listed some recommendations intended to improve the current forest policy. Some efforts were made by the forest department in collaboration with the Overseas Development Administration (ODA) Forest Planning and Management Project to restate the policy in 1994, but the results of that exercise remains in draft form as yet.

A Policy as a statement of purpose may be the initiative of an individual or a group of concerned persons who recognizes a situation which needs attention. Prior to 1991, the Forest Department did not have a section with direct or explicit responsibility for management of protected areas or enforcement of the wildlife protection rules/regulations. These were in fact part of the general responsibility of all officers of the department, but it was not the most efficient means of operation. The FAO sector survey identified this deficiency, and described it, and included some recommendations to rectify the situation in the report that was produced. The 1989 report was the subject of a workshop held under the TFAP programme for the purpose of attracting grant funds to implement some of the recommendations made in the report. Some time after the 1991 workshop one international organization, the World Wildlife Fund of the US, acting in collaboration with the government of Belize was able to design and fund a project to establish the Conservation Division as the section within the

Forest Department responsible for national parks management and wildlife management, including law enforcement.

## 3.2 Implementation

Implementation of forest policy is the responsibility of the Forest Department. The current structure and staffing of the department is the result of the process of evolution from the appointment of a single Conservator Of Forests in 1921. This post was later supported by a three-man Forest Trust to manage the forest estate. The three-man, all governing Forest Trust had grown into a five -man unit by 1925. The Forest Trust was a Board which directed the development and management of the forest estate. The Trust oversaw a Forest Executive comprised of trained and professional staff who carried out the daily routines. By 1928 the Forest Executive was staffed as described below:-

one Conservator of Forests
three Assistant Conservator of Forests
four Forest Rangers
one Inspector of Crown Licences
one Forestry Mechanic
one Messenger
two Forest Guards
one Chief Clerk & Secretary to the Trust
one Temporary Assistant Clerk
two Typists
one Tracer

The period between 1927 to 1959 saw steady growth as the level of authority and amount of responsibility increased as the department absorbed the tasks necessary in its role as the forest manager. The greatest period of growth of the department occurred in the first half of the 1950s when forest stations were established in the western and southern districts to serve as regional headquarters. Quarters were constructed to house staff and other employees. Investments were pumped into a major road network to provide access, at the same time functioning as a means of fire protection. Equipment such as light duty trucks, fire-tenders, fire-fighting tools, and radio communication sets were procured and placed in service in the management of the forest estate. Detailed forest licences were also being issued to allow the proper exploitation of the resource. The period of growth of the department appears to have peaked during that same period. The development of the capacity to govern the colony with increasing local authority instead of rulership from England occurred over almost the same period as the growth of the forest department. The small group of rich land-owners demanded the right to make decisions for themselves in the colony without direct intervention from the mother country located so far away. The department continued to be staffed by British officers, but they were accountable first to the local Legislative Council, then to the Legislative Assembly as these governing bodies evolved.

## 3.3 Mechanisms

A number of laws, rules and regulations, one dating back to 1927, are some of the tools utilized by the forest department (or by the minister responsible for forestry) to achieve the objectives of the mission statement. The 1927 Forest Act provides the authority to declare forest reserves, to administer such reserves, to determine and collect royalties on forest products, and to make regulations for the protection and disposal of such forest produce. The same Act describes the level of authority of forestry officials, prescribes penalties for forest offences, and provides for the declaration of forest roads The authority is vested in the minister responsible for forestry matters who may or may not act on the advice of the Chief Forest Officer - the Head of the department. The authority extends to applying the provisions or regulations of the act to both national and private lands, and provides for the revocation of any order. The minister responsible for forestry is also empowered to make regulations for proper administration of the act, to make regulations for the taking/extraction of forest produce, for squatting in forest reserves, lighting fires in reserves, allowing farm stock to graze in forests, hunting, clearing or cultivating land within forest reserves, quarrying land-fill materials, burning lime, and controlling activities on forest roads.

An Ordinance, now known as a Statutory Instrument is the vehicle of change. It is the published form of a new law which has been introduced to deal with an issue, or to revise a law or regulation

perceived to have outlived its usefulness. A statutory instrument may repeal an old law while introducing a new one, or it may be an amendment to an old but still valid law or regulation needing some revision.

Today when new laws are being introduced, they may be drafted within the appropriate ministry of department in the form of a Bill which is presented to the House of representatives after review by the office of the Solicitor General. It is aired, read publicly at house meeting three times which provides opportunity for comments, amendments or revision, then approval by the members of the House followed by approval by the Senate, before the minister signs it in its final form. It is then published in the Government gazette which makes it effective as a new law on the date it came into effect. The recent trend displayed by certain departments has been the inclusion of public consultation in the process of policy development. The policy may be in response to some problem or concern, so once this is properly identified and solutions proposed, the draft may be taken through the route of public meetings for participation and input in the design from all levels of the community. This offers some possibility of wider and more basic involvement in the process and ensures easier acceptance and adherence to the law/regulation when it comes into effect. The forest department has been applying this technique since 1993 to obtain community level input into the formulation of the new Forest Management Licenses which are being introduced. These new contracts to exploit forest produce in forest reserves are designed to place greater responsibility on the licence-holder in achieving the objective of sustainable forest management. Residents of villages near the particular reserve, representatives of other government departments, environmental groups, and members of non-government organizations are invited and expected to participate in the process of development.

The complement of Statutory Instruments, Acts, Rules, Regulations, and Amendments in existence has produced a forest estate comprised of forest reserves and national parks covering approximately 37 percent of the country. Some silvicultural practices, such as thinnings, prescribed burns, and reseeding, compliment the efforts towards sustainable forest management being applied in a few selected forest reserves at this time, as an example of the objectives of improving the forest and to increase forest production. The NGO involvement serves to help in the areas of promoting public awareness, in introducing forestry practices on private land, and in managing private land outside the forest estate. The government of the country continues to sustain the forest department with the annual allocations under the National Budget described as Recurrent Expenditure. This fund is occasionally supplemented by funds committed by international organizations through projects, or by additional funds provided by the Belizean Government for special projects which do not normally form a part of regular operations.

The role of the private/industrial sector is evident through that sectors efforts to improve the quality of products for the local market and for export by investing for improvement of their facilities, or by diversification to produce value-added goods. Factories are now producing items', such as veneer, plywood, parquet flooring, treated lumber, dried lumber, treated poles and posts, customized furniture, and prefabricated house sections. This sector also works to find its own markets, whether collectively or through individual effort and provide employment to hundreds of people as well as generate revenue to government in the form of taxes and foreign exchange.

Besides the laws and regulations applied to achieve the objectives of forest policy, the private sector is also involved in the achievement of policy objectives. One such mechanism in use in Belize to this end, is the result of the relationship between government and non-government organizations. Over the years, a strong, vocal and educated community of NGOs has become established in this country. While they are primarily active in community development tasks and activities, a few are involved in natural resources management and environmental education. Of special interest is the relationship formalized between the Forest Department/Ministry of Natural Resources and the Belize Audubon Society. A Memorandum of Understanding was signed by representatives of the two organizations which shared the responsibility for the management of National Parks between them. This legal agreement gave the BAS the authority to collect entrance fees to six of the areas declared under the National Parks System Act of 1981, and to use the funds generated for the development of infrastructure for the same parks. This approach is in response to the extremely limited resources available within the organizations and creates a compatible relationship in which the strengths of the partners are effectively utilized. This has proven to be an effective partnership to both organizations.

# 4. ISSUES

There are a number of issues related to the current forest policy objectives of this country which have become evident. Concerns over the rate of deforestation; the exploitation of the forest resources without up-to-date statistical data available to the department causing negative impact on the resource; the amount of land "locked up" in protected areas; the lack of involvement of the public in the process of issuing forest licenses; the procedure used to issue licences and the persons or companies who are given permits to exploit the forest reserves and forested national land, are a few discussed here.

For a number of years, it has been estimated that the country was losing forests at the rate of about 7,000 acres per year. This rate was based on guesswork alone, because no accurate details were being kept about all the changes contributing to the loss of forest cover. The expansion of towns and villages by the addition of new subdivisions and farming areas respectively, were not being surveyed and measured and mapped in all areas. The expansion in the agricultural sector, taking the form of new citrus orchards, banana plantations or cane fields always occurred on land originally covered with national forests. Even when these lands were issued by the Lands and Surveys Department, they were not always accurately surveyed. The same was the problem with the building of new roads. If old roads were realigned, or completely new ones built, these inevitably went through forested areas. The amount of forest lost on the sides could easily be three to four times the width of the carriage way, by the time the roads was completed. The cumulative effect of the deforestation is such that the forest was actually being lost at about five times the rate that was guesstimated, between 25,000 to 30,000 acres per year (Tremblay 1996). Splinter groups moving away from established village sites and squatting elsewhere was another form of encroachment and even logging activities contributed to the deforestation by the opening of truck passes/logging roads and log landing for temporary storage of logs before transportation to the mill site.

The issue of increased deforestation has arisen because of the activities of various groups or organizations. They all seem to consider the forest as an obstacle in the path of their special interest/development plan. Very little thought is given to examining options on how the resource could be changed with minimum environmental impact. In some cases, the loss is greater in economic value than the infrastructure which replaced the forest and costs more to sustain.

The exploitation of forests without accurate statistical data was not only related to the issue of deforestation, but also to that of sustainable forest management. Without this kind of information available, no quotas or limits in the form of annual allowable cuts could be applied on the majority of logging licences. The resulting overcutting is immediately evident in the small-sized logs being harvested and the decreasing volume of timber recovered today. These signs definitely do not suggest sustainable harvests. The complete loss of the forests would be the end result if such practices are not brought under control within a fairly short time. The system of using girth limits to allow the harvesting of logs can also have negative impact on the quality of the forests. When those trees above certain diameters (measured at about four and half feet above the surface of the ground) are harvested, all the bigger specimens are eventually removed. A forest of immature stock is left behind and the continual return to the same area to extract more in later years, leads to degradation due to the damage caused to the regeneration. The removal of only a few selected species results in the loss of biodiversity with the forest because of the loss of the tree itself as well as the loss of the habitat for those organisms for which the tree was host. This is generally the result of improperly controlled industrial activity.

Early reports contain statements about the lack of capacity of the forest department to properly manage the estate. The lack of properly trained staff and the lack of equipment were blamed for this failure. This particular issue may be in the process of being resolved since 12 officers have had the benefit of overseas training lasting from eight months to two years during the last six years. The other staff members who did not participate in those training programmes, received several months of in-country training through modular courses which were purposely designed for them, along with personnel from the non-government organizations involved in natural resources management and environmental education. Equipment in the form of vehicles, computers, radio network, and repairs to buildings were procured during the implementation of two five-year bilateral projects resulting from the Tropical Forestry Action Plan Programme. Observations made over the next five years, may determine whether the forest department has been able to deal effectively with this issue. At the same

time, other mechanisms need to be developed to allow the forest department to sustain the staffing levels, as well as support equipment.

Several public awareness programmes launched by both NGOs and government have been effective enough to awaken the public to the extent of protected areas now existing in the country. These same campaigns have increased the public's awareness about the restrictions on their behaviour imposed by the change in status of certain areas of land. Since the public became more aware of the extent of forest reserves and other protected areas, there have been a few instances of objections to the declaration of more preserves. It is usually the result of some individual developer or company who assumes that giving such status to an area will have a negative impact on his development plans. The assumption is that the land is locked away from the public's use. Some plea for farmland where small acreages of suitable soils may fall within the borders of national parks, or they may protest against the fact that they can no longer hunt or fish inside such areas. The same public awareness/education programmes are working to change attitudes or traditional practices so a gradual acceptance is being achieved, more quickly when the practical benefits in the form of alternate sources or means of generating income is realized.

This tends to be a temporary matter because the objectors end up becoming the strongest supporters of the protected areas when they realize the benefits for themselves. Farming may not generate as much income as some would like, so alternate employment or revenue generation from tour-guiding, accommodating and feeding tourists, or selling handcrafted items to them, are welcome supplements for the affected family.

Recent events in the country have raised questions about the procedures or practices used to award forest licenses to individuals or companies. The award of a long-term forest license to a Malaysian owned company in the southern most district has received attention in both local media and in those of some states in the USA. While it is recognised that the country needs foreign investments and it has been a long-standing one to attract such, it was felt, in some quarters, that the selection process was not adequately addressed. Objections have been raised at local community levels by the resident Ketchi Indians of this part of the country and some have gone to the extent of serving notice of court action on the Government of Belize and have approached environmental organizations for financial assistance. This issue may have been exaggerated through the intervention of politicians and because the issue might have been misidentified. The protestors claim "Sell out" of their Mayaland home instead of a procedural lapse in awarding forest license. The incident has also served to focus attention on the need for greater public participation during the process to approve applications and granting forest licenses.

The current practice of acquiring a forest licence for exploitation of forest produce requires only a few stages in the process. An applicant may proceed to one of the district forest offices or to the headquarters in Belmopan to complete an application form. The area being requested under license is identified in written description or by a sketch map attached to the form. The Chief Forest Officer appends some comments and recommendations to the Minister responsible, who may or may not approve the application based on the advice given. At present, there are no technical parameter guiding the selection process to decide on a suitable operator. This problem is compounded by the already mentioned lack of accurate data about the available stocking of timber and the estimated potentials for future harvests.

The bigger operators are becoming increasingly concerned about the large number of small operators who are acquiring forest licences. Most of these small operators possess minimal equipment, such as chain saws, rubber wheeled tractors and flat bed trucks. None of their operations are sustainable. The large number of this category of licence holders make it difficult for the forest department staff to effectively monitor and control their activities. It also creates a situation which is not beneficial to those logger/sawmillers who wish to invest in equipment to improve their production. The competition for the resource is strong, but those who do not invest have the advantage for the same reason. They are able to harvest and convert with low capital costs. Many loggers simply sell their logs to any saw miller who wishes to purchase. Some operators almost obsolete circular saws which produce conversion rates of round logs to lumber below 30 percent.

The issue tends to be mostly between the large and small operators, but the staff of the department and the environmentalists recognize that the situation is one which leads to overcutting of the forest

and to deforestation in some places. It is imperative that plans be implemented to alleviate the impending shortage of growing stock and potential crash of the industry.

The regulations prescribe a process of auction or tender sales for some classes of forest products but this has not been applied for decades. This applies to cases where only one type of forest produce would be extracted under that licence.

Another area of concern has been the practice of the Lands and Surveys Department district staff awarding lands, within the boundaries of forest reserves, under lease to individuals or companies. This may have been due to the lack of properly made maps with the reserve boundaries demarcated. This was an issue which was recognized at the level of public officers in at least two government departments. Fortunately, this situation is being resolved with the assistance of the TFAP projects. Outputs of the projects included the demarcation of the boundaries of a number of forest reserves which were identified as being under the most threat, the production of up-to-date maps showing the reserve boundaries using GPS equipment, and making such maps available to both Forest and Lands and Surveys Departments. Collaboration between the staff of the two departments has also contributed to resolving the issue.

Another related issue had arisen because of a policy of the Lands and Surveys Department to convert leased land to property after the leased-holder had accomplished some level of development. Unfortunately "development" was often interpreted as removal of the vegetation cover from the land, thereby contributing to deforestation. Dialogue with senior personnel of that department was effective in introducing a clause in the terms of the land leases which served to reverse the unwarranted land-clearing practices. Lease holders were encouraged to retain a portion of the land under vegetation, and the department considered the value of land as being improved if steps were taken to improve the condition of the portion of forest remaining on the parcel. The Revised Land Utilization Act made provision for environmental protection so land clearing is now considered in its true impact.

## 5. POLICY ANALYSIS CAPACITY

Knowledge about the Belize Forest Policy is not common. Senior officers in the department are usually aware that such a statement describing the purpose and objectives of the department exists. The mid-level and junior staff members are aware of the department's role in managing the county's forests; but the full range of the policy is not known to all. Few organizations outside the department are aware of its mission, including the general membership of the Lumber Producer's Association.

The TFAP programme actually increased the entire department's awareness of its policy and the same could be said for the NGO groups and the private sector engaged in forestry activities. Staff members and personnel from the community were consulted during the fact-finding phase of the mission and the findings were discussed at the workshops. The report was published and distributed to a number of organizations after the government accepted it. The TFAP report was used as a working document to bring about change by implementing some of the recommendations even before the United States and the United Kingdom governments provided sustained support through the two bilateral project agreements. In general terms, the United States Natural Resources Management and Protection Project (NARMAP) focussed attention on environmental matters, while the UK Forest Planning and Management Project (FPMP) dealt primarily with forest management matters. The forest policy was, therefore, effectively addressed since the basic and common goal of the two projects was to further the efforts of the department to achieve the objectives of the policy statement. One project impact of the FPMP was the revision of the mission statement in order to address the current needs of the country.

The projects increased the capacity of the department to conduct analysis of policy. The presence of more trained staff allowed for greater input in evaluating the performance of the department. Staff meetings were the fora for discussions and problem solving. These staff meetings involved staff at all levels of the organizations and this type of participation had become the practice since 1991. The input of staff members at the most junior level, Forest Guards, was especially valuable because they were the persons who were out in the field on a daily basis; they were the ones faced with the problems of monitoring activities, enforcing laws and being in direct contact with the public at all times and under all conditions. These officers, during the course of the meetings, identified the problems

and collectively were able to propose options to solve these problems. The senior officers who are accountable to the Permanent Secretary and the Minister, were cognizant of issues at that level and, therefore, made the choices of options which would yield the best results; not being able to satisfy all needs, but making the best compromise. Their contributions were considered and incorporated into some of the revised regulations drafted since 1991.

The department also improved its relations with the NGO community and the business or industrial sector. The Lumber Producer's Association which represents this sector became more involved in matters dealing with the timber trade and exports thus helping to streamline the procedure used in monitoring volumes of timber intended for export. After an attempt at exporting Zericote logs was foiled in 1994, a system of inspection to verify species and quantity of timber was also put in place through the joint efforts of the Customs and Forest Department and the Supplies Control Branch in the Ministry of Trade. The lumber producers complied with the newly introduced system even though it was not formally gazetted as a regulation at the time. In this case, a problem was identified and a system introduced to deal with it through collaborative effort.

As part of the process of increasing the awareness of the staff about all aspects of the department, a considerable amount of literature was made available to them. The whole collection of laws, rules, regulations, and the policy statement was copied from the master documents and distributed to all the offices of the department. Enough copies of this collection were distributed that each staff member received one. Copies of these materials were also distributed to institutions, such as the National Library Service and the tertiary and secondary level educational institutions, as well as organizations or institutions who requested them.

The Forest Department, unlike the Agriculture Department, does not have a staff position or unit dealing specifically with policy. It appears that it was not necessary, since the policies which were drafted, were effectively implemented and have withstood the test of time. Neither did issues develop so quickly that a quick-response mechanism had to be in place to resolve them.

Due to the very nature of forests, i.e. their long term growth and development, policy objectives take time to be accomplished and there is usually enough time to respond to newly observed problems or needs, such as deforestation or biodiversity protection.

A trained and competent staff working in cohesion should adequately perform the function of analyzing, revising and implementing policy.

# 6. POTENTIALITIES

The Forestry Sector in Belize has the potential to develop beyond the stage it is now. As the trend moves towards greater output of value-added products, so will greater revenue be generated. Sustainable management of the reserves will increase the volumes harvested in the next rotation, not only from the existing 14 percent considered suitable, but a part of that under protection (due to immaturity) will also have achieved harvestable status by that time.

## 6.1 Introduction

The greater realization of forest policy objectives in Belize would accommodate developments which have potential in a few areas. The industrial sector is now diversifying. A forest estate under sustainable management would provide the industrial sector with the necessary secure resource base to guarantee the development of a wider range of manufactured and value added products. Projections of sustainable volumes of harvestable timber are the subjects of business decisions since investors have to be confident about recovering investments and generating profits within a reasonable time frame. The public sector similarly benefits from the taxes earned by government and the expanded job market for the unemployed. The contribution of the forestry sector in the domestic product would again increase. Even the 14 percent of forests which are considered as suitable for timber harvesting could generate more revenue than is being realized now; but only through proper management and commitment to the long term goal.

Ecotourism is a growing industry in this country. With about 37 percent of forests under some form of protection, there is great potential for development in this area. Improvement of the infrastructure within the national parks will enhance the experience of the visitor. Again, proper management of the facilities will allow the visitor capacities to be increased without creating too much negative environmental impacts on the system. The exercise to develop a National Protected Areas System Plan identified certain ecosystems which were missing from the present network. Inclusion of these should fill the niches and increase the potential for research while increasing the biodiversity of the system. Intellectual Rights Agreements need to be negotiated and finalized to prevent uncontrolled exploitation and to ensure that Belize benefits from any products developed as a result of research in the national parks or on products collected from these areas. Better facilities at the sites will enhance visitor experience and attract greater numbers.

## 6.2 Agroforestry

Agroforestry is a relatively underdeveloped field in Belize. The trial plots on the Gallon Jug property in North-eastern Belize where coffee is grown in lines cleared under the forest canopy appears to have yielded successful results and is being expanded. A similar trial on a smaller scale has been started in a forest in the Cayo District; in this case, with the coffee being planted in the pine forest. This has not yet developed into anything other than a trial, but the produce is being used locally at a tourist lodge located on the property.

The Hershey Foods Company of the United Kingdom had conducted 12 years of research in Belize. That company had planted Gmelina (*Gmelina arborea*) as a cover crop and grown cacao under the shade in an area on the Hummingbird Highway. The experiment has been completed, the land sold, and the Gmelina and cacao plants taken out of the area and citrus now occupies the land. Other than these cases, there are no other examples which have been started or are underway.

Both the Agriculture and the Forest Departments have begun to consider Agroforestry practices over the last few years. However, besides establishing contact with ex-country institutions, such as CATIE, which has experience in such fields, not much progress has been made (CATIE - Centro Agronomico Tecnologica de Investigacion y Ensenanza en Costa Rica). The potential can only be realized if both agencies jointly identify the needs to meet both sets of objectives, identify possible areas of application as well as potential participant groups, conduct feasibility studies, then select appropriate species of trees or crops and initiate the programmes by providing technical assistance for demonstration purposes complemented with well designed educational material. Species need to be introduced and managed for farming, timber and protection purposes in order that some practical end use will be possible as alternate sources of income. Incentives, such as tax benefits, may encourage some farmers to participate in such projects.

## 6.3 Forest Plantations

In the late 1950s, the forest department had started a series of forest plantations. Species including mahogany, Gmelina, teak (*Tectona grandis*) and Caribbean pine were planted in variously sized plots on a number of sites. Only the gmelina plantations were continued up until 1984. These plantations provided a source of fast growing wood which was utilizable for both construction and furniture making. With the budgetary allocations either being reduced each year or being maintained at the level of the previous year (with no adjustment for inflation), the plantation operation was eventually abandoned by the forest department. One projection made in 1990 indicated that the financial yield from the gmelina plantations would have been greater than that from the entire forest estate if the rate of plantations had been maintained (Jim Nelson - personal comment). The potential of forest plantations needs to be reconsidered in light of the state of the productive forest today, since there has to be some means of meeting demands for medium term production if Belize is not to become dependent on imports.

Another 2,800 acres of pine plantation at Machaca in the southern most district yielded twice the normal revenue because a management fee was added to the royalty on trees extracted from this area.

One failure which may have contributed to the abandonment of the plantation scheme might have been the absence of any revenue coming from these plantations in the early years of development. No proper silvicultural treatments were applied, probably because there was not much of a market for pine (fence posts). Today, with the availability of impregnation plants and timber drying kilns, the medium term yields from thinning would find a market.

There are now other factors to favour forest plantations, especially the growing need for sources of timber other than the natural forests, if imports of lumber is not acceptable. Plantations would serve to increase the resource base, reduce the demand on the diminishing natural forest, provide an alternate source of timber once they mature and help to reverse the trend of deforestation. While forest plantations do not display the same level of biodiversity as nature provides, these do eventually become suitable habitats for many species of plants and animals.

# 7. INSTITUTIONAL ARRANGEMENTS

## Introduction

The responsibility for managing the forests of Belize is institutionalized in the government of the country. When first established, the original department of the British Honduras colony functioned as a self-governing body, but became a government section about 60 years ago.

The development of the forest sector occurred simultaneously with that of the country.

## 7.1 Government Structure

Belize is a Democratic country with each of two political parties having the opportunity of forming the government after being successful in the general elections, namely the People's United Party and the United Democratic Party. Two other political parties have been formed during the last ten years, the National Alliance for Belizean Rights and the Peoples Democratic Party. Neither of the latter two have been able to field candidates in all of the 28 constituencies, and have, therefore, not yet played major roles in the government of the country. In fact, the NABR rejoined forces with the UDP in the last election of 1993 and with the UDP winning the majority number of electorial divisions was able to form the present Government. A Governor General is the local representative of the Queen since Belize is still a member of the Commonwealth.

The country is run by an elected House of Representatives which comprises 29 members. The Senate is an eight member body comprising of five members appointed by the ruling party; two by the Opposition and one appointed by the Governor General.

Belize has a Constitution, in place since 1981, when the country achieved Independence from Britain and its type of Government is patterned off that of Britain (described as Westminster). Governments remain in power until general elections are called at about four to five year intervals.

At the local regional level, the six Districts of the country are run by Town Boards whose elections are held every two years; except for the old and new capitals of Belize City and Belmopan which are run by the City Council and Reconstruction and Development Corporation (RECONDEV) respectively. The Reconstruction and Development Office was a statutory body put in place to manage the new capital of Belmopan since 1970 and remains in place to date. The new capital was a purpose built city, established to move the seat of government away from the coast because of the devastating effects of the hurricanes which occasionally passed over and through the country. Most of the government offices originally headquartered in Belize City were moved to Belmopan in 1972, but up to date, Belize

City remains the commercial capital of the country. The character of Belmopan has changed during its 27 years of existence since a tertiary level school has been established, but more so because of the refuge communities which have grown up on the periphery of the city over the years. These immigrants contribute to the economy and culture of the city because of their traditional farming methods employed in vegetables and fruit farming, with their presence making the market square busy and colourful as they sell their vegetables and fruits in this central area of the city. These people also provide domestic services and a sizeable portion of the local workforce in construction and maintenance services.

The government runs the affairs of the country through a Cabinet comprised of Ministers who are mostly elected representatives. The Cabinet is responsible for all policy decisions. Government decisions are implemented by a bureaucracy known as the Public Service comprised of professionals, technicians, skilled and unskilled employees.

## 7.2 The Ministry Responsible for Forestry

At this time, the Forest Department is a part of the Ministry of Natural Resources. Other Departments included in this Ministry are the Lands and Surveys Department; the Office of Geology and Petroleum, and the Water and Sewerage Authority. Of the four, WASA is a statutory body operating with its own funds, although its responsibility is the provision of potable water for all areas of the country. WASA's responsibility also includes the construction and maintenance of sewerage systems, although this has been completed only in parts of Belize City and Belmopan. Individual septic tanks with soakaways is still the most common system in all parts of the country and most rural areas still utilize pit latrines/toilets for human waste disposal. In villages and small communities WASA continues the task of installing wells, reservoirs and hand pumps in order that people do not have to depend on rivers, streams or ponds for drinking and cooking water supplies. WASA's stated mission is to provide rudimentary water systems for all communities of Belize by the year 2000. In most towns or villages, the water is obtained either from rivers or wells, collected into reservoirs for treatment (with chlorine) before distribution to homes or stand-pump serving small communities.

The Office of Geology and Petroleum has responsibility for the issue of all types of permits or licences for prospecting or extraction of minerals, either metals or sand and gravel, as well as the monitoring of operators active in the field. This office enforces regulations, establishes and collects royalties, levies penalties for infractions. It is also able to call upon other departments for assistance in monitoring and enforcing its regulations. It is a relatively new unit in Government of Belize, since it was only established in 1986 with the support of the United Nations Development Programme, which provided long term consultancies, equipment and degree-training to establish the office, while allowing time for local staff to assume the administrative and management responsibility of the "Office".

The Lands and Surveys Department, as the name implies, is that arm of Government responsible for all matters pertaining to National Lands, i.e. lands belonging to the state. Mechanisms, such as regulations, leases, conveyances, taxes, are tools applied by this Department in monitoring the ownership and use of land. The Lands and Surveys Department also has the responsibility of mapping the country and monitoring transactions and collecting taxes relevant to land uses which is contributed to the General Revenue. A Land Diversification Centre has recently been established which maintains all types of land information in digital format, applying Geographical Information Systems to update records to improve the quality and delivery of service to the public. The Lots' Committees, located in each district, deal with applications submitted by individuals or families who desire small parcels of land to construct homes. All lands regardless of the size, when first obtained can be described as being rented from government, and are held under lease. After a period of development, if the lease holder is able to satisfy the staff of the Department that the conditions of the lease have been met, the lease can be converted to property, at which time the owner acquires "title" upon payment of the relevant taxes and fees. A system of issue of "title", bypassing the lease stage, has been introduced within the last three years as a means of providing first-time land owners with the opportunity of doing so quickly while ensuring the rapid development of new subdivisions being established by the Ministry of Natural Resources through its Lands and Surveys Department.

Lands which were already privately owned, can be sold from one person to the next, although a tax is payable to government, and the transaction should be registered either with the General Registry (a

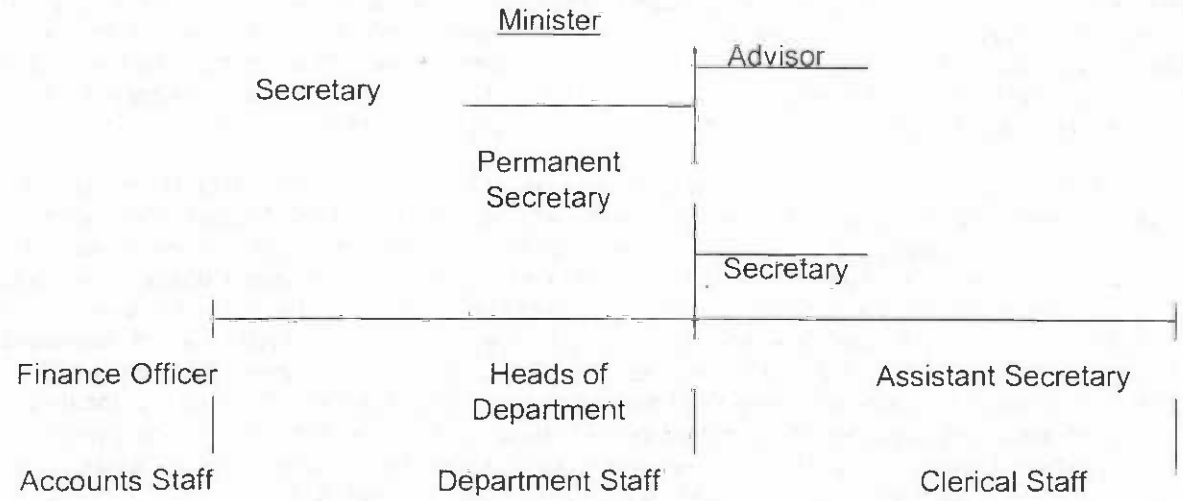
Department outside the Ministry of Natural Resources) or in the Registrar's Office of the Lands and Surveys Department/Ministry of Natural Resources. A system of Conveyances is in place to monitor such activities, and speculation and trading of land outside of Belizean ownership like a commodity is controlled by the Aliens Land Holding Act. Under the conditions of this act, an alien purchasing land in excess of ½ acre within towns or in excess of 10 acres outside a town is required to obtain a licence from the Minister responsible, and this licence may include provisions to protect the environment.

Taxes on land ownership are collected by the Government on an annual basis, although the Town Boards also collect a Property tax which they use to provide local utility services, such as garbage collection, street maintenance and fire protection. The taxes are fairly low, and there is a high incidence of non payment at all levels. Within the last four years, government has increased its efforts to collect same since the lost revenue reduces the capability of the government to provide services.

The Forest Department has been placed under the Ministry of Natural Resources since 1987. Prior to this date, it had been within the Ministry of Agriculture for a number of years. Even earlier, the department had formed a part of the Ministry of Trade and Industry. The placement of a Department within a particular Ministry is a decision usually made after a general election when the leader of the winning party is asked to form the Government. The placement of the Forest Department may be beneficial or otherwise depending on the circumstances. It should serve to facilitate dialogue or discussion between staff when changes are contemplated which will affect the estate of both Departments. In the past, there had been tendency to bypass the proper procedure in de-reserving forest land because it was the same Minister responsible. This was part of the reason for some individuals holding leases in forest reserves when technically the land had not been dereserved. Other reasons for such oversights were discussed elsewhere in this document. An improved process of consultation has helped to resolve this problem.

Each Minister is assisted by a Permanent Secretary who is the senior-most public officer in a Ministry. The Heads of Departments are accountable to the Permanent Secretary; while they are in turn supported by their complements of staff. The headquarters of the Ministry usually has its own complement of administrative and clerical staff who may have some responsibility for certain aspects of the departments, such as personnel and financial management. Please see Table 2 below for a basic organizational structure of the Ministry of Natural Resources.

***Table 2: Basic Organizational Structure Of The Mnr***



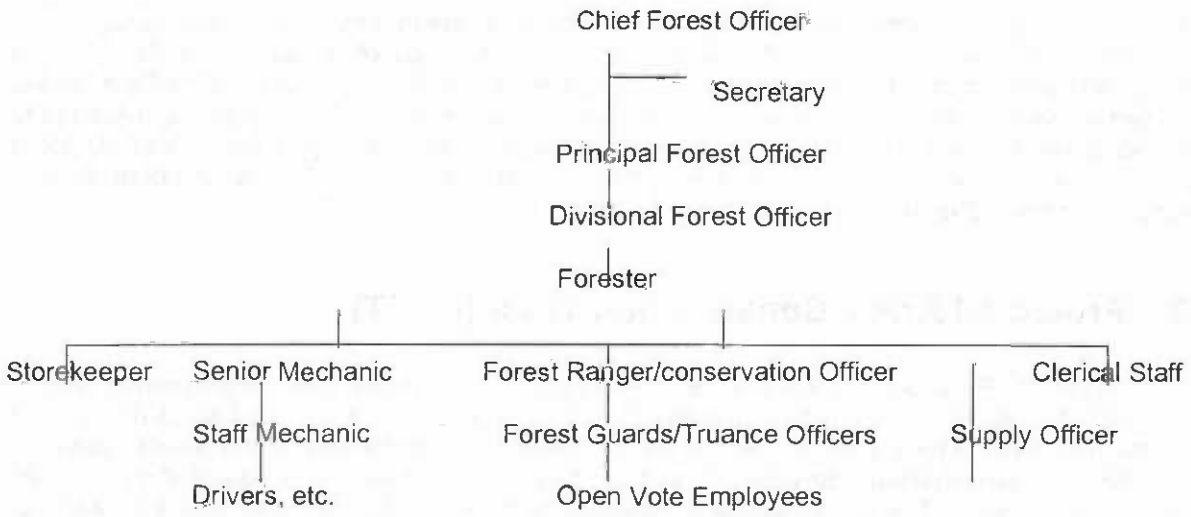

## 7.3 Forestry Administration

The Forest Department, as of October 1997, employed a total of 158 persons. Of this number, 82 are on the Permanently Established Staff, while the remaining employees are described as Open vote or

hourly/weekly paid with different terms of employment from the Permanent Established Staff. This latter group range from Assistant Mechanics, to drivers, operators and some office staff such as Timekeepers and Assistant Storeman. The P. E. Staff of the Forest Department include the Chief Forest Officer, Principal Forest Officers, Divisional Forest Officers, Foresters, Forest Rangers, Conservation Officers, Forest Guards, Supply Officers, Storekeepers, First- and Second-Class Clerks, and Senior and Staff Mechanics. These officers are eligible for gratuities and pension upon retirement, as well as annual increments of salary, and promotions depending on vacancies. Open-Vote employees do not receive annual increments, but are paid overtime for extra hours worked, and can receive a severance pay and a gratuity after completing a minimum of five years of employment. The gratuity is provided only if the employee has reached retirement age of 55 and completed the required service.

According to the Forest Act of 1976, the Chief Forest Officer is empowered to enforce the forest laws and regulations to issue various types of permits for the exploitation of the forest, to levy and collect royalties on forest produce removed, and to collect fines for certain types of forest offences. At present, there are nine other laws relevant to the forest sector. As already mentioned, the Forest Act provides empowerment to the Chief Forest Officer. It is this act which also empowers the Minister responsible for Forestry to establish forest reserves, to amend forest laws and regulations; to establish and amend royalty rates; to revise forest reserve boundaries. This law provided for the issue of five classes of forest permits for the extraction of forest produce (Appendix VI).

***Table 3: Generalized FD Organizational Chart***




After over 75 years of existence, the Forest Department does not have a headquarters building out of which it administrates the forest estate. The Senior Officers are usually accommodated in offices of the Ministry to which the Department is attached. For the last seven years, the staff (headquartered in the Capital City, Belmopan) have been dispersed between the different buildings; this had increased to five during the period of implementation of the bilateral projects. This does not contribute to the effective administration of the department and the logistical problems are evident. Offices are also located in all the districts except the northern most, Corozal, in order to provide services to the public. Contact is maintained via telephone, fax machines and the radio network.

Operating and maintenance costs are allocated annually during the budget exercises, and funds are provided for a full range of activities from salaries, wages, through repairs to facilities and equipment, for silvicultural, monitoring (exploitation control) and fire prevention and protection.

The Chief Forest Officer is supported by a complement of staff with formal and on-service training acquired at all levels.

# 8. RELATED POLICY STUDIES: 1986-1997

## 8.1 The Belize TFAP Report

The Belize Tropical Forestry Action Plan Report, completed by Oxford Forestry Institute in July 1989, was probably the most comprehensive study done of the forestry sector in this country. In November 1987, the government of Belize informed FAO of its interest in having this study done under the Tropical Forestry Action Plan and the Overseas Development Administration of the UK was invited to lead the exercise. A seven-man team of consultants provided by ODA, the Canadian International Development Agency (CIDA), USAID, and FAO worked along with forest department staff on field visits to all parts of the country as the first phase. The team did a preliminary analysis of the sector in consultation with GOB and NGO participation. Individual reports of team members were compiled into a single draft, which was first reviewed in the UK at the OFI. Additional input of forest management information was made by one of the consultants who returned for an extra few weeks. Another draft report incorporated the findings of the review meetings and discussions, and the final report was produced in November 1989.

## 8.2 Belize Forest Policy (HFP)

The most recently completed study of Belize Forest Policy is reported by Help for Progress, a non-governmental organization, in its 1996 document entitled "A Study of Belize Forest Policy." This exercise was conducted with the financial support of the Central American Council for Forests and Protected Areas (CCAB-AP). This study dealt with the analysis of the "Restrictions and Constraints to Implementation of Forest Policy." The Help for Progress team was entirely Belizean and utilized a system of interviews, group discussions at workshops, literature review, field visits, and draft revision in order to complete their analysis of the forestry sector.

## 8.3 Protected Areas Conservation Trust (PACT)

The World Wildlife Fund Grant which assisted the Department to establish the Conservation Division, also served to highlight the need to develop the National Parks to allow greater utilization and generate more income for the country. A study of the needs was completed and the results published in a 1992 document entitled "Revenue Generation Strategy for Protected Areas of Belize" by R. Aukerman & G. Haas. The major recommendation coming out of that exercise was the need *"to establish a Protected Areas Conservation Trust (PACT), dedicated to supporting the efforts of these public, private and non-government institutions contributing to conservation of protected areas."*

The PACT was enacted in July of 1996. It functions as a Statutory Body which administers funds sourced through a variety of sources, such as Departure Taxes collected from foreign visitors, and from Entrance Fees to National Parks. The funds are allocated through grants to those NGOs and community-based groups whose project proposals meet the established criteria for implementation in various areas of natural resources and biodiversity protection.

This provides a means of developing the infrastructure and sustaining the protected areas of Belize without the dependency on annual allocations from the already limited national budget. The FD and the MNR are key role players in this institution, supported by representatives of other government ministries and private sector organizations.

## 8.4 The Conservation and Environmental Data System

During the implementation of the United States Agency for International Development's Natural Resources Management & Protection Project (USAID/NARMAP), one of the major tasks was the establishment of a Data Management System known as CEDS. This was designed as a computerized

data-storage system whose members were able to store all types of environmental information, retrieve, exchange and utilize them according to the terms and conditions of a Data Sharing Agreement. This unit was headquartered in the MNR and member organizations include the Forest Department, the Land Information Centre (LIC) of the MNR, the Environment Department and NGOs, such as the Belize Audubon Society and Programme for Belize, Belize Centre for Environmental Studies, The University College of Belize and others. The information stored and shared on the system allows for more efficient use of scarce resources and should make policy implementation more effective.

## 8.5 Towards a Protected Areas System for Belize

A 1994 Study done by Programme for Belize had examined the whole existing system of Protected Areas. It sought to identify anomalies, find gaps and make recommendations for declarations of other sites so that the full range of ecosystems and inhabitants would be adequately protected by the presence of representative units on a countrywide basis. This study incorporated the findings of an Inter American Development Bank Project Report which had helped the Government of Belize to identify the minimum requirements for country-wide biodiversity conservation, in view of the limited financial resources. This Minimum Conservation System (MICOSYS) made recommendations for size of areas of vegetation sites which would allow for representation of all ecosystems in the country.

That exercise was funded by USAID/NARMAP and conducted by the Programme for Belize, with the report published in the volumes titles "Towards a Protected Areas System for Belize: Synthesis and Consultants' Reports."

## 8.6 National Lands Act (Revised)

The revised National lands Act of 1992 introduced a clause on all new National Land leases which required the lease-holder to maintain a 66 foot wide strip of vegetation in its natural state along all permanent waterways. The 66 foot reserve had originally been conceived as a public "right-of-way" but the 1992 revision added a substantial element of environmental provision to the original objective.

## 8.7 Economic Aspects of Forestry Management in Belize

The 1991 Conrad Smith Report entitled "Economic Aspects of Forestry Management in Belize" was an objective evaluation of the impact forestry activities had on the economy of the country. This study was one part of a package provided under a UNDP/FAO/GOB project agreement. In relation to forest policy, this study identified certain areas of the forestry sector which could contribute much more than was being realized at the time. There were recommendations made for recovery of investments, "Management Costs" from harvest of timber from forest reserves and forest plantations, and for revision of royalty rates to increase revenue generation. Also, timely and important at that time, was the recommendation for the procurement of some fire-fighting equipment in order to protect the resource that was planned for exploitation. There had been many and large wildfires which had burnt out of control in the pine forests in the few years prior to the study. Mr. Smith also recommended improved management in the pine forest in the west and south of the country, since these had great potential for the future sustainability of the industry. Belize forest department staff had accepted this as one of the most comprehensive evaluations of the sector at that time.

# 9. CONCLUSIONS AND RECOMMENDATIONS

## 9.1 Conclusions

The original and current forest policies have been important tools in guiding the utilization of the country's forests for its sustainable development. The objectives of the policy have all been met to a greater extent. Even after 300 years of exploitation, Belize is still in possession of healthy pine and hardwood forests. Increased demand for raw materials and manufactured products has resulted in a level of deterioration and some deforestation, but, in general, the same species composition still exist in almost all areas of the forest estate.

The present estate is a combination of protection and production forest enhancing and sustaining watersheds, protecting erodible slopes and soils, and providing natural habitats for a wide range of plants and animals. The nature of past harvesting practices has resulted in a habitat that still exhibits great biodiversity of species and is still able to support the activities of a large segment of the Belizean and visiting populations. Logging, sawmilling, ecotourism activities, medicinal plant material collection and non-timber product exploitation are all benefits and services which the Belize forest estate has been able to sustain over the last two decades and although not all these uses appear to be compatible with each other, the combined management by the public and private sectors has made it work for Belize.

As the concern about global warming and biodiversity protection increases the demand for priority attention, the value of the world's forests are changing. Belize with about 70 percent forest cover, definitely has a part to play especially due to its geographic location in the tropic zone. It is already recognized that it is the tropical forest of the world which has the greatest potential to function as carbon sinks, and to protect and sustain the widest range of living organisms. The potential contribution of Belize is, therefore, significant if it is to be compared with most of the Caribbean islands or the same level of forest cover.

The forest policy has functioned as a guide, with complementary strategies over the decades, which have proven beneficial in the Belizean situation.

## 9.2 Recommendations

The process of revising the Forest Policy of Belize needs to be completed. The process already stated by the Forest Department now needs external exposure (out of the Department, but in country) from other GOB departments and private organizations in order that potential conflicts could be reduced; and that the final "Mission Statement" is comprehensive of the entire sector.

The New Forest Policy, when completed, needs to be publicized and adopted. This should create a better awareness at the political level which should allow the technical people in the Department to work towards the objectives with full support from all sectors of the population.

The Forest Department can then develop strategies and activities designed to achieve short, medium and long-term objectives of the forest policy. Systematic or periodic policy evaluation should be institutionalized within the department.

A New Forest Policy statement must be compatible with other policies (of other agencies) which have an effect on land use in the country, as well as on the marine environment. These and other policies, when properly applied, should result in a balance between the needs and demands being placed on the available resources.

The method of determining the forestry sector's contribution to the national economy should be revised. The true source of some contributions, besides Royalties, should at least be acknowledged

as originating from the sector. For example, about 40 percent of the tourism contribution would not be possible if there were no forests in Belize. If the Department had not increased its management and protection of the mangroves since 1993, much more of this forest type would have been lost due to uncontrolled development within these areas, and both the protection and fish nursery function would have been destroyed. A vibrant, local furniture and wood-carving industry has developed, they could be wiped out if the forest was lost completely.

A need identified since the 1987 TFAP sector review, and one which is still a priority today, is a National Forest Inventory. In the absence of precise and accurate statistical information about the resource, the forest department remains handicapped while trying to develop and implement sustainable management of the estate. The Forest Planning and Management Project will leave behind a legacy of management plans for some forest reserves. However, there are many large gaps in the information base. Many reserves have not been assessed in any form whatsoever and neither have those areas, declared under the National Parks System Act, been surveyed. The same is the case for those areas of National Lands which are under forest cover but outside reserves. Similar inventories need to be initiated for wildlife species in order that the true status of species native to and migrant to Belize can be determined. Only after these exercises are completed, will a true picture of the Belize situation emerge. The relevant authorities should establish research priorities to facilitate the procurement of data to meet Belize's management needs first, then to satisfy other interests afterwards.

Agroforestry systems or practices need to be considered as appropriate alternatives to other land use on leased lands which have been abandoned or even unused. These should offer opportunities for income generation to the lease holder, or be returned to Government where some better use could be made of them. Agroforestry should serve to increase the value of the land through a combination of uses and products and afford some protection from erosion, nutrient and water loss through the lack of vegetation cover.

# APPENDIX I - FOREST POLICY OF BRITISH HONDURAS

**Colonial Secretary's Office, Belize, 2nd September, 1954.**

The following Forest Policy of the Government of British Honduras as approved by the Governor in Council is published for general information:-

The Forest Policy of the Government of British Honduras is:-

1. Established to preserve for all time and develop a Crown Lands Forest Estate consisting of areas of Crown Land in any of the following categories:-

(a) land unsuitable for permanent agriculture but supporting or capable of supporting forest.
(b) Land capable of producing a greater sustained financial return, if retained or developed as forest than if used for other purposes.
(c) land which is best kept or put under forest for the better protection of watersheds, catchment areas, drainage basins, steep hill slopes and for the prevention of erosion, the control of run-off, the regulation of steam-flow and the stabilization of the climate.
(d) areas which are required for the production of fuelwood for use in towns and villages or by local industries, or for the production of rough building and fencing materials for local use.
(e) areas which from time to time may be set aside as nature reserves.

2. In order to establish the Forest Estate, to survey, demarcate and constitute as forest Reserves by proclamation, all Crown Land areas described in paragraph 1 above. Forest Reserves once constituted will only be dereserved wholly or in part by the Governor in Council as a result of some over-riding public necessity.

3. In order to preserve the Forest Estate, to maintain demarcated boundaries by clearing of traces and maintenance of boundary marks as may be necessary to afford protection to the forest from fire, animals, insect pests or diseases, trespass and illicit felling, removal of or damage to forest produce, by such measures including legislation as the Government may deem advisable and practicable; and to place all exploitable Forest Reserves under sustained yield management by innumerable surveys, and calculation of increment or other practicable methods of yield control of exploitation, and by their yield of timber and other forest produce will be maintained in perpetuity.

4. In order to develop the Forest Estate, and thus ensure an adequate and increasing supply of timber and other forest produce at a reasonable price to the people, industries and timber trade of British Honduras, and for export; to establish intensive regeneration centres in selected forest reserves. At these regeneration centres, the aim will be to create fully stocked forests or plantations of mahogany, cedar, pine or other species including exotics by artificial or intensively-assisted natural regeneration over areas adequate to supply in perpetuity a sawmill or processing plant of economic size at or near each centre.

5. To increase production from Forest Reserves by ensuring full utilization of prime hardwoods and pine, and encouraging the use of secondary hardwoods and other forest produce; by developing local and export markets for small dimension stock of prime hardwoods and pine; for secondary hardwoods and other forest produce; by exploring the possibilities of other forms of Forest utilization, for example for paper pulp.

6. To raise the quality of sawn lumber exported to world markets by the institution of Timber grading, the encouragement of seasoning and of accurate sawing and machining to specification, in order to achieve assured markets for British Honduras timber abroad.

7. To promote the practice of forestry on freehold lands, by the control of felling of mahogany, cedar and such other species as the Government may deem advisable, by the inspection and marking for felling of trees of these species to specified minimum girth limits; encouraging and assisting landowners to draw up and implement simple working plans for the sustained yield management on approved lines of their forest land in the categories described in 1 (a), (b), (c) and (d) above; and by encouraging and assisting afforestation on private lands.

8. To control the exploitation of forests and forest produce growing outside Forest Reserves on Crown Land not yet taken up for Agriculture by the issue of Forest produce licenses framed in such a way that these forests, which are a wasting asset on land allocated to agriculture, will continue to augment the yield from Forest reserves for as long as a time as possible during the period when forest reserves are being brought up to full production.

9. To bring about an increased appreciation of the need for and aims of forest conservation amongst the general public by propaganda over the British Honduras Broadcasting Station, and to the schools.

10. To maintain a Forest Department of sufficient strength and supplied with sufficient funds to carry out the Forest policy set forth in 1 to 9 above; supported by an adequate research programme; and to staff the Forest Department with personnel recruited locally so far as possible and trained at established University Schools of Forestry, or at Forester training schools, or locally, as may be appropriate to the different grades.

Dated this day 28th day October, 1954.

By Command,
P.M. Renison,
Governor.
M.P. 759/53

T.D. Vickers
Colonial Secretary.

# APPENDIX II - PROPOSED REVISION OF THE FOREST POLICY OF BELIZE (MCCALLA, 1994).

The Forest Policy of Belize seeks to:

(a) Achieve an equilibrium between conservation of forest related natural resources (biodiversity, water, soil and oxygen) with the productive development of the forest sector, within the framework of sustainable development.

(b) Adapt forestry administration to focus on promotion and support, making the technical and administrative procedures efficient, in order to enhance the productive process.

(c) Conserve and support the increase of natural forest products and establish and regulate protected forests. At the same time, increase the national forest inventory through the recuperation of areas with good forest potential, based upon technical criteria.

(d) Develop a forest management plan which will demarcate conservation areas for forest reserves and facilitate the transfer of land, where this is appropriate, between forestry and agriculture and for agroforestry uses.

(e) Examine ways to assist in the development of a more efficient and competitive forest industry through modernization of industrial process, adequate methods of commercialization, forest pricing, the elimination of restrictive barriers and the gradual elimination of industry protectionism.

(f) Raise the value added of forest resources by promoting the establishment of industries, such as furniture production, veneers.

(g) Increase the capacity of forest management through investigation, training and forest extension; accomplished in coordination with the public and private sectors and with universities through mechanisms of technological transfer.

(h) Establish long term sustainable forest licenses which are governed by comprehensive management plans.

(i) Ensuring that environmental consideration is taken into account in the formulation and implementation of forest management practices.

(j) To raise public awareness on forestry conservation practices and regeneration methods.

In order to implement its forest policy, the Government of Belize will:-

1. Establish, preserve for all time and develop a state lands forest estate consisting of areas of state land in any of the following categories:-

(a) land unsuitable for permanent agriculture but supporting or capable of supporting forest.
(b) land capable of producing a greater sustained financial return, if retained or developed as forest rather than if used for other purposes
(c) land which is best kept or put under forest for the better protection of watersheds, catchment areas, drainage basins, steep hill slopes, the prevention of erosion, the control of run-off, the regulation of streamflow and the stabilization of the climate.

(d) areas which are required for the production of fuelwood for use in towns and villages or by local industries, or for the production of rough building and fencing materials for local use.
(e) areas which from time to time may be set aside as nature reserves.

2. In order to establish the forest estate, to survey, demarcate and constitute as Forest Reserves by proclamation, all State Land as described in paragraph 1 above. Forest Reserves, once constituted will only be dereserved by:

(a) consultation with the public;
(b) consultation with the Department of the Environment.

3. In order to preserve the Forest Estate, to maintain demarcated boundaries by clearing of traces and maintenance of boundary marks as may be necessary to afford protection to the forest from fire, animal and insect pests or disease, trespass and illicit felling, removal of or damage to forest produce, by such measures including legislation as the government may deem advisable and practicable; and to place all exploitable Forest Reserves under sustained yield management by enumeration surveys, and calculation of increment or other practicable methods of yield control; by control of exploitation and by natural and artificial regeneration or tending operations, so that their yield of timber and other forest products will be maintained in perpetuity.

4. In order to develop the Forest Estate, and thus ensure an adequate and increasing supply of timber and forest produce and a reasonable price to the people, industries and timber trade of Belize, and for exports; to establish extensive regeneration centres in selected forest reserves. At these regeneration centres, the aim will be to create fully stocked forests or plantations of mahogany, cedar, pine or other species including exotics by artificial or intensively assisted natural regeneration over areas adequate to supply in perpetuity a sawmill or processing plant of economic size at or near each centre.

5. To increase production from Forest Reserves by ensuring full utilization of prime hardwoods and pine, and encouraging the use of secondary hardwoods and other forest produce; by developing local and export markets for small dimension stock of prime hardwoods and other than pine; for secondary hardwoods and other forest produce; by exploring the possibilities of other forms of forest utilization, for example, for paper pulp.

6. To raise the quality of sawn lumber exported to world markets by the institution of lumber grading, the encouragement of seasoning and of accurate sawing and machining to specification, in order to achieve assured markets for Belizean timber abroad.

7. To promote the practice of forestry on freehold lands, by the control of felling of mahogany, cedar and such other species as the Government may deem advisable, by the inspection and marking for felling of trees of these species to specified minimum girth limits; encouraging and assisting landowners to draw up and implement simple working plans for the sustained yield management on approved lines of their forest land in the categories described in 1 (a), (b), (c) and (d) above; and by encouraging and assisting afforestation on private lands.

8. To control the exploitation of forests and forest produce growing outside Forest Reserves on State Lands not yet taken up for Agriculture by the issue of Forest produce licenses framed in such a way that these forests, which are a wasting asset on land allocated for agriculture, will continue to augment the yield from Forest Reserves for as long a time as possible during the period when forest reserves are being brought up to full production.

9. To bring about an increased appreciation of the need for and aims of forest conservation amongst the general public.

10. To maintain a Forest Department of sufficient strength and supplied with sufficient funds to carry out the Forest policy set forth in 1 to 9 above; supported by an adequate research programme; and to staff the Forest Department with personnel recruited locally as far as possible and trained at established university schools of forestry, or at forester training schools, or locally, as may be appropriate to the different grades.

11. To encourage the development of forestry industry in Belize by:

(a) regulating and licensing sawmills;
(b) encouraging the manufacture of timber and the development of timber products.

# APPENDIX III - FOREST SECTOR SHARE IN GROSS DOMESTIC PRODUCT (CURRENT PRICES IN 000'S BZE. DOLLARS)

| *Year* | *Gross Domestic Product* | *Sector* | *Percent* |
|---|---|---|---|
| 1980 | 340,348 | 7989 | 2.35 |
| 1981 | 340,226 | 6583 | 1.93 |
| 1982 | 314,540 | 7304 | 2.32 |
| 1983 | 333,647 | 6317 | 1.89 |
| 1984 | 371,462 | 7419 | 2.00 |
| 1985 | 366,185 | 6782 | 1.85 |
| 1986 | 392,824 | 4651 | 1.68 |
| 1987 | 479,237 | 10073 | 2.10 |
| 1988 | 531,291 | 10831 | 2.04 |
| 1989 | 613,250 | 13524 | 2.40 |
| 1990 | 727,331 | 15374 | 2.27 |
| 1991 | 823,730 | 18481 | 2.54 |
| 1992 | 823,730 | 20048 | 2.43 |
| 1993 | 901,493 | 195445 | 2.17 |
| 1994 | 926,958 | 23044 | 2.49 |
| 1995 | 985,963 | 20207 | 2.05 |

Table derived from Belize Abstract of Statistics 1996.

# APPENDIX IV - FOREST RESERVES

| *Reserve Type* | *Name* | *Acreage(Acs)* | *Most Recent S.I.* | *Management Status* |
|---|---|---|---|---|
| Forest Reserves | Chiquibul | 147,889 | 54/95 | Government |
| | Columbia River | 102,940 | 40/77 | Forest Department |
| | Commerce Bight | 5,452 | 41/89 | Forest Department |
| | Deep River | 78,574 | 49/41, 66/90 | Forest Department |
| | Freshwater Creek | 60,177 | 12/60 | Forest Department |
| | Grants Works | 7,906 | 95/89 | Forest Department |
| | Machacha | 3,756 | 23/87 | Forest Department |
| | Manatee | 103,878 | 21/59 | Forest Department |
| | Mango Creek | 35,549 | 62/89 | Forest Department |
| | Maya Mountain | 128,111 | 66/90 | Forest Department |
| | Monkey Caye | 1,460 | 74/96 | Forest Department |
| | Mountain Pine Ridge | 126,825 | 49/77 | Forest Department |
| | Sibun | 106,392 | 48/77 | Forest Department |
| | Silk Grass | 4,806 | 60/82 | Forest Department |
| | Sittee River | 94,156 | 47/77 | Forest Department |
| | Swasey Bladen | 14,779 | 90/89 | Forest Department |
| | Terra Nova | 6,781 | 133/93 | Forest Department |
| | Vaca Plateau | 52,352 | 165/91 | Forest Department |

# APPENDIX V - PROTECTED AREAS

| *Name* | *Acreage (ha)* | *Most Recent S.I.* | *Management Status* |
|---|---|---|---|
| Nature Reserves | | | |
| Bladen | 99,678 | 66/90 | FD |
| Burdon Canal | 5,255 | 88/92 | BAS/FD |
| Tapir Mountain | 6,744 | 58/946 | BAS/FD |
| **National Parks** | | | |
| Aguas Turbias | 8,760 | 44/94 | PfB |
| Blue Hole | 665 | 109/86 | BAS |
| Chiquibul | 286,289 | 55/95 | FD |
| Five Blues Lake | 4,061 | 52/94 | Fo5BL |
| Guanacaste | 58 | 46/90 | BAS |
| Laughing Bird Caye | 10,119 | 94/96 | FD |
| Monkey Bay | 1,799 | 45/94 | FD |
| Paynes Creek | 31,676 | 43/94 | FD |
| Rio Blanco | 100 | 41/94 | FD |
| Temash-Sarstoon | 41,898 | 42/94 | FD |
| Bacalar Chico (National Park & Marine Reserve -- Declared jointly) | 28.148 | 88 & 89/96 | Forest & Fisheries Dept. Respectively |
| **Wildlife Sanctuary** | | | |
| Cockscomb Basin | 86,929 | 127/90 | BAS |
| Crooked Tree | 41,297 | 95/84 | BAS |
| **Marine Reserves** | | | |
| Glover's Reef | 81,237 | 170/94 | Fisheries Dept. |
| Hol Chan | 2,759 | 38/93 | Fisheries Dept. |
| South Water Caye | 78,374 | 118/96 | Fisheries Dept. |
| Sapodilla Caye | 33,401 | 117/96 | Fisheries Dept. |
| **Natural Monuments** | | | |
| Halfmoon Caye Natural Monument | 9,771 | 30/1992 | BAS |
| **Private Protected Areas** | | | |
| Community Baboon Sanctuary | 12,980 | -- | Community |
| Monkey Bay | 1,474 | -- | Private |
| Rio Bravo Conservation & Management Area | 262,000 | -- | PfB |
| Shipstern Nature Reserve | 18,841 | -- | BAS |
| Slate Creek Preserve | 4,300 | -- | Slate Creek |

# APPENDIX VI - TYPES OF FOREST LICENCES

1) A Forest Licence is used for the sustained yield harvesting of timber or other forest produce excluding chicle, usually valid for periods of five to ten years.

2) A Forest Licence that is not for sustained yield of forest produce, also excluding chicle, may be valid for twelve month periods.

3) A Forest Permit for the harvesting of timber or other forest produce in a salvage area where the value (royalty) on the produce extracted does not exceed $1,000.00.

4) A Petty Permit allows the extraction of minor forest produce including logs of commercial species as well as non-timber forest products up to a maximum royalty value of $200.00.

5) A Chicle Licence allows the bleeding and collection of chicle sap/resin from Sapodilla Trees on public and private lands excluding national parks.

# APPENDIX VII - CURRENT ROYALTY RATES (S.I. #56 OF 95)

| *Local Name* | *Scientific Name* | *Min Girth* | *Rate/tree* | *Rate/cuft* | *Rate/ton* |
|---|---|---|---|---|---|
| Banak | *Virola koschyni* | 72 | 16 | 0.24 | 0 |
| Mahogany | *Swietenia macrophylla* | 78 | 0 | 1.24 | 0 |
| Cedar | *Cedrela mexicana* | 78 | 0 | 1.24 | 0 |
| Mayflower | *Tabebuia rosea* | 60 | 17 | 0.52 | 0 |
| Pine | *Pinus caribbaea or tecuenumanii* | 42 | 14 | 0.34 | 0 |
| Cypress | *Podocarpus guatamalensis* | 60 | 14 | 0.28 | 0 |
| Santa Maria | *Calophyllum brasiliense* | 72 | 16 | 0.24 | 0 |
| Tubroos | *Enterolobium cyclocarpon* | 90 | 8 | 0.12 | 0 |
| Yemeri | *Vochysia hondurensis* | 72 | 16 | 0.24 | 0 |
| Barba Jolote | *Pithecellobium arboreum* | 72 | 16 | 0.24 | 0 |
| Black Cabbage Bark | *Lonchocarpus castilloi* | 72 | 16 | 0.24 | 0 |
| Carbon | *Guarea sp* | 72 | 16 | 0.24 | 0 |
| Chicle Macho | *Manilkara* | 72 | 16 | 0.24 | 0 |
| Cramantree | *Guarea exceisa* | 72 | 16 | 0.24 | 0 |
| Nargusta | *Terminalia amazonia* | 72 | 16 | 0.24 | 0 |
| Salmwood | *Cordia alliodoro* | 60 | 14 | 0.20 | 0 |
| Sapodilla | *Manilkara sp* | 72 | 16 | 0.30 | 0 |
| White Tamarind | *Acacia spp* | 72 | 8 | 0.12 | 0 |
| Turtlebone | *Pithecellobium recordi* | 72 | 8 | 0.12 | 0 |
| Timbersweet (Laurel) | *Licaria peckii* | 72 | 8 | 0.12 | 0 |
| Billy Webb | *Sweetia panamensis* | 60 | 16 | 0.30 | 0 |
| Bullet Tree | *Bucida buceras* | 72 | 16 | 0.30 | 0 |
| Cotton | *Ceiba pentandra* | 90 | 8 | 0.12 | 0 |
| Cortez | *Tabebuia chrysantha* | 72 | 14 | 0.30 | 0 |
| Ironwood | *Dialium guianense* | 72 | 8 | 0.12 | 0 |
| Prickly Yellow | *Zanthoxylum sp* | 36 | 8 | 0.12 | 0 |
| Waika Chewstick | *Symphonia globulifora* | 60 | 8 | 0.12 | 0 |
| Black Poisonwood | *Metopioum brownii* | 60 | 14 | 0.30 | 0 |
| Mylady | *Aspidospermyum megalocarpon* | 60 | 16 | 0.30 | 0 |
| Sillion | *Pouteria belizensis / P. Izabalensis* | 54 | 16 | 0.30 | 0 |
| Red Sillion | *Pouteria amygdalina* | 54 | 16 | 0.30 | 0 |
| Granadilo | *Platymischium yucatanum* | 54 | 14 | 0.30 | 0 |
| Red Mapola | *Bernoullia flammea* | 72 | 8 | 0.12 | 0 |
| Negrito | *Simaruba glauca* | 60 | 8 | 0.12 | 0 |
| Polak (Balsa) | *Ochroma lagopus* | 0 | 8 | 0.12 | 0 |
| Provision Tree | *Pachira aquatica* | 54 | 8 | 0.12 | 0 |
| Qualmwood | *Schizolobium parahybum* | 54 | 8 | 0.12 | 0 |
| Bastard Mahogany | -- | 54 | 8 | 0.12 | 0 |
| Red Wood | *Mosqitoxylum jamaicense* | 54 | 8 | 0.12 | 0 |
| Madre Cacao | *Gliricidia sepium* | 0 | 4 | 0.12 | 0 |
| Mangrove | *Rhizophora, Laguncularia, Avicenia* | 0 | 1 | 0 | 0 |
| Botan palm (Bayleaf) | *Sabal morrisiana* | 0 | .4 | 0 | 0 |

| Local Name | Scientific Name | Min Girth | Rate/tree | Rate/cuft | Rate/ton |
|---|---|---|---|---|---|
| Moho | *Heliocarpus, Belotia spp* | 0 | .4 | 0 | 0 |
| Male Bullhoof | -- | 60 | 8 | 0.12 | 0 |
| Rosewood | *Dalbergia stevensonii* | 0 | 0 | 0 | 60 |
| Zericote | *Cordia dodecandra* | 0 | 0 | 0 | 60 |
| Fustic | *Chlophora tinctoria* | 0 | 0 | 0 | 34 |
| Jobillo (Palo Mullatto) | *Astronium gravolens* | 0 | 0 | 0.34 | 0 |
| Monkey Apple | *Licania platypus* | 0 | 0 | 0.12 | 0 |
| Gmelina | *Gmelina arborea* | 0 | 0 | 0.75 | 0 |
| Bastard Rosewood | *Swartzia cubensis* | 0 | 0 | 0.12 | 0 |
| White Breadnut | *Brosimum alicastrum* | 0 | 0 | 0.12 | 0 |
| Fiddlewood | *Vitex gaumeri* | 0 | 0 | 0.12 | 0 |
| John Crow Wood | *Abrus precatorius* | 0 | 0 | 0.12 | 0 |
| Hog Plum | *Spondias mombin* | 0 | 0 | 0.12 | 0 |
| Habing | -- | 0 | 0 | 0.12 | 0 |
| John Crow Bead | *Ormosia spp.* | 0 | 0 | 0.12 | 0 |
| Red Tamarind | *Acacia, Pithecolobium spp.* | 0 | 0 | 0.12 | 0 |
| Tzalam | *Acacia spp.* | 0 | 0 | 0.12 | 0 |
| Tempiste | -- | 0 | 0 | 0.12 | 0 |
| Wild Mammee | *Alseis yucatanensis* | 0 | 0 | 0.12 | 0 |
| Wild Grape | *Poulsenia armata* | 0 | 0 | 0.12 | 0 |
| Teak | *Tectona grandis* | 0 | 0 | 0.12 | 0 |
| Pine Stumps | *Pinus spp.* | 0 | 0 | 0 | 5.00 |
| Pine poles (30') | *Pinus spp.* | 0 | 20.40 ea. | 0 | 0 |
| Pine poles (40') | *Pinus spp.* | 0 | 25.50 ea. | 0 | 0 |
| Fig | *Ficus* | 0 | 0 | 0.12 | 0 |
| Candlewood | *Sideroxylon capiri* | 0 | 0 | 0.12 | 0 |
| Cedrillo | *Guarea tuerckhamii* | 0 | 0 | 0.12 | 0 |
| Bitterwood | *Vatairea lundenllii* | 0 | 0 | 0.12 | 0 |

# APPENDIX VIII - LIST OF ACRONYMS

| | |
|---|---|
| BAS | Belize Audubon Society |
| BCES | Belize Centre for Environmental Studies |
| BATH | Belize Association of Traditional Healers |
| CCAB-AP | Central American Commission for Forests and Protected Areas |
| CEDS | Conservation and Environmental Data System |
| CFO | Chief Forest Officer |
| CZM | Costal Zone Management |
| DFO | Divisional Forest Officer |
| FAO | Food and Agriculture Organization |
| FD | Forest Department |
| Fo5BL | Friends of 5 Blues Lake |
| FPMP | Forest Planning and Management Project |
| GEF | Global Environmental Facility |
| GOB | Government of Belize |
| HfB | Help for Progress |
| LIC | Land Information Centre |
| LUA | Land Utilization Authority |
| MICOSYS | Miniumum Conservation System |
| MNR | Ministry of Natural Resources |
| MOAF | Ministry of Agriculture and Fisheries |
| MTE | Ministry of Tourism and Environment |
| NARMAP | Natural Resources Management and Protection |
| NEAC | National Environmental Appraisal Committee |
| NGO | Non Government Organization |
| NHM | Natural History Museum of England |
| ODA | Overseas Development Administration |
| PfB | Programme for Belize |
| PFO | Principal Forest Officer |
| RBCMA | Rio Bravo Conservation And Management Area |
| TFAP | Tropical Forestry Action Plan |
| UNDP | United Nations Development Programme |
| USAID | United States Agency for International Development |
| WWF | World Wide Fund for Nature |

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# FORESTRY POLICY OF THE BRITISH VIRGIN ISLANDS

**by Sheriff Faizool**

## 1. INTRODUCTION

### Forestry in the British Virgin Islands

**Elements of Forestry:** The British Virgin Islands do not have an established forestry sector. However, the Department of Agriculture, the National Parks Trust, the Department of Fisheries and Conservation and other organizations are involved in various elements of forestry. The major forestry elements include, trees and forest for soil and water conservation, forestry in support of tourism, ecotourism and recreation, biodiversity and ecosystem maintenance, watershed management, wildlife and national parks and protected areas. A small amount of wood is removed for poles and fire wood. Boat building, once a large industry, is reduced to just one operation in the island of Tortola.

**Forest Type**: Sugar was cultivated on all suitable land in earlier days and as the industry declined, secondary growth took over abandoned plantation areas. Estimations for areas of forest types are given in Table 1 (Caribbean Development Bank, 1983).

***Table 1: Forest Type Areas on the Main Islands (ha)***

| *Vegetation* | *Tortola* | *Virgin Gorda* | *Anegada* |
|---|---|---|---|
| Rain Forest | 57 | - | - |
| Moist Forest | 378 | - | - |
| Dry Woodland | 851 | 1482 | 315 |
| Cactus Scrub | 567 | 865 | 252 |
| Mangroves | 37 | 123 | 63 |
| Total Forest Area (ha) | 1890 | 2470 | 630 |

**Exploitation and Management:** As the economy moved from an agricultural to a tourism oriented base, the cutting of fuelwood and the production of charcoal diminished. Today, only a small but unrecorded quantity of charcoal is produced. Unknown quantities of fence-posts are cut from forest areas each year and a small amount of shifting cultivation in Crown Lands is being brought under control. Local timber is no longer used for furniture or boat building.

**Reforestation:** Reforestation is largely limited to amenity planting although some planting has been undertaken within the Mount Sage National Park.

**Watershed Management:** There are no permanent streams and water is obtained for domestic purposes from rainwater collection and a central distribution system in the Road Town area supplied by pumping from the groundwater lenses in the alluvial valley bottoms. There is also a de-salinization plant in Tortola for the supply of potable water.

**Agroforestry:** Until very recently, agroforestry was not practiced, but the Department of Agriculture has since initiated a small scheme for the settlement of landless farmers on plots of Crown Land. The scheme includes the establishment of fruit and shade trees within mixed farming areas and these results should be closely monitored since the scheme appears to have potential for application in the less vulnerable parts of catchment areas.

**The Forest Industries Sector:** A forest industry as such does not exist in the British Virgin Islands and utilization is confined to the cutting of posts and fuelwood. The quantities cut are not known. With the exception of posts and fuelwood, the demand for forest products is met by imports. Rough lumber

and roundwood imports remain constant but imports of dressed lumber and manufactured wood show continuous increase. Small quantities of posts and poles were imported from Guyana and the United States. The main suppliers of lumber were Brazil, Honduras, the United States, Jamaica and Puerto Rico. Plywood came from Brazil, Taiwan, Puerto Rico and the United States; hardboard and particleboard from Jamaica, the United States and Puerto Rico. In the secondary forest industries sector, there are a few workshops which produce furniture of a high quality. Low productivity and high labour costs are common. The building sector consumes most of the imported lumber and wood products and doors, windows etc. are frequently imported in pre-fabricated form.

**National Park and Protected Areas:** The National Parks Trust was established by the National Parks Ordinance of 1961, as a statutory body responsible for the management of natural and historic resources in legally protected areas. The Trust is administered by a board and a staff of 22 officers. Three of the 22 staff members are professionally trained.

The Trust currently manages 14 terrestrial and one marine park. It should be noted though that the Protected Areas Plan of 1986 recommended a total of 17 sites. Since 1964 when Mount Sage was proclaimed a National Park, reservation and proclamation have continued and there are now 14 protected areas with a total extent of 1200 ha. On Virgin Gorda, the National Park serves to protect watersheds, as well as to provide a habitat for wildlife.

In order to preserve the natural environment, the Trust also initiates and supports projects and programmes in other areas. Other works of the Trust include the protection of wildlife habitats in proposed parks and promotion of conservation through environmental education. Specific programmes include the annual Arbour Day in November, Iguana Emergency Feeding Programme in Anegada, preparation and distribution of a quarterly newsletter, as well as radio and school environmental programmes.

**The Physical Development Plan 1996 (draft):** This draft Plan identified various large conservation and natural resources for development. Some of these areas are as follows:- a reforestation programme for the entire territory; the development and landscaping of scenic drives; the development of look out points; the development of the Dungeon and adjacent site; the development of Copper Mine Point; the upgrading and provision of beach facilities; the development of car parks, concessions, recreational facility adjoining Gorda Peak National Park; the development of Mount Healthy; the establishment of a national park in Anegada; the development of natural history museum Anegada; the development of dive & snorkelling sites; declaration of new areas as national parks; the development of trails in northern Jost Van Dyke; the development of a reef management and moorings programme; the development of Nanny Cay.

## Socio-Economic Profile (CDB 1996 Annual Report)

A summary of the latest economic indicators for 1991 to 1996 are outlined in Table II.

The population of BVI(1996) is approximately 18,722 of which 15,352 live in Tortola, 2,835 in Virgin Gorda, 197 in Anegada and some 169 in Jost Van Dyke. The draft Physical Development Plan 1996 estimates the population for BVI in 2011 to be approximately 25,300 with just over 20,000 being in Tortola/Beef Island.

The BVI unlike most of the other Caribbean territories are characterized by virtually near full employment. The major employment sectors of the economy are tourism (23 percent), Government (21 percent), wholesale and retail trade (14 percent) and construction (10 percent). Traditional sectors of agriculture and fisheries have declined over the years. A significant number of BVI residents find employment in US Virgin Islands, where the wages are somewhat higher. Wages in BVI are, however, among the highest in the Eastern Caribbean and as the growing economy has resulted in a labour shortage, there is a substantial in-migration of workers from other islands. Work permits in 1993 were 4,127 of which 582 were new permits from a total work force of 10,396.

The most recent development has been in tourism. Though the business is very small compared with that of the United States Virgin Islands, it is the sector of importance. The growth of tourism has been accompanied by a rise in land values and by a decline in agricultural production.

***Table 2 - Summary Economic Indicators of BVI (CDB, 1996)***

| *Economic indicators* | *1991* | *1992* | *1993* | *1994* | *1995*[a] |
|---|---|---|---|---|---|
| GDP US$m | 209.7 | 244.4 | 264.8 | 300.2 | 338.5 |
| Real GDP growth at factor cost % | 2.0 | 2.5 | 3.5 | 3.5 | 3.7 |
| Consumer price inflation % | 6.4 | 3.2 | 2.7 | 4.2 | n/a |
| Population '000 | 17.1 | 17.1 | 17.4 | 17.9 | 18.3 |
| Exports fob US$ | 3.0 | 3.0 | 3.0 | 3.0 | n/a |
| Imports fob US$ | 105.0 | 107.1 | 122.9 | 128.0 | n/a |
| Current account US$ | -23.0 | -29.1 | -27.5 | -29.4 | n/a |
| Total external debt US$ | 27.2 | 34.3 | 34.4 | 34.5 | 40.0 |
| Debt-service ratio % | 1.8 | 2.1 | 1.0 | 1.0 | 2.0 |

[a] Estimates by the Caribbean Development Bank

The tourism sector has experienced an extremely high growth rate for the last 20 years and these new and large with the construction of marinas, hotels and land fills have changed the physical appearance of the landscape. The hotel rooms have grown from 848 in 1984 to 1,200 in 1996. Holiday visitors have grown from just below 300,000 (1991) to just over 400,000 (1996).

Most of BVI tourism is water-based with over 60 percent of the over-night visitors staying on boats, usually bare-boat charters. There were approximately 500 boats for charter in 1996. Water-based recreation including scuba diving, deep sea fishing and wind surfing are some of the popular activities.

In the offshore business sector, the number of non-taxed international business company registrations rose sharply from 16,000 (1991) to 41,800 (1996). Trade license approvals grew from 240 (1991) to 324 (1996).

Current revenue collections during 1996 amounted to $112.5 million, with collections attributed to the offshore business sector amounting to an estimated 45 percent of the total. Trade tax collections rose by 10.25 percent to $16.5 m, while personal and corporate income tax collections rose by 20 percent to $21.7m.

Prospects for an acceleration of GDP growth in the BVI in the short to medium term are excellent. The territory is well-known for its up-market tourism facilities, particularly for yachtsmen, and has developed a reputation as a preferred offshore business centre.

The coastal waters are rich in many species of fish. Interest in fishing as a sport is growing rapidly. A fisheries depot was opened in 1983 and provides a marketing and distribution system, ice making facilities, handling and processing and a retail outlet.

Travel to BVI is by sea and air. The major airport on Beef Island services Tortola via a bridge, and there are daily flights from San Juan, the US Virgin Islands and several Caribbean territories. There are also daily flights to Anegada and Virgin Gorda. Ferries are a regular form of transport to and from the surrounding islands. Port Purcell at Road Town is the principal port of entry and provides a deep water berth. There are fairly well maintained roads linking the major communities.

At present, agriculture contributes a relatively small percent of the GDP. In 1989, agriculture and fisheries contributed 3.6 percent to GDP compared with the 4.4 percent and 3.9 percent in 1987 and 1988 respectively. Twenty years ago, agriculture was once a primary occupation of the people. It contributed more than 60 percent of the GDP of the territory. The decline of agriculture has been attributed to the prominence of the tourism sector.

## 2. CURRENT FORESTRY POLICIES

Current forestry policy can be divided into two major areas. Firstly, those policies that are international in nature and relate to conventions and agreements that the territory has decided to implement; and

secondly, there are policies that are national in nature that the Government has implemented or is in the process of doing so. The international conventions and agreements that BVI are party to are as follows:

## International Policies

**International Conventions and Agreements:** As a dependency of Britain, the territory in most instances is party to many of the international and regional agreements and conventions. Follow-up action with respect to many of the conventions are not in keeping with agreed schedules.

**Cartegena Convention**- there is need to review the implementation of this Convention.

**Ramsar Convention-** some action in identifying a site has been taken.

**Convention on Biological Diversity-** action is required in respect to strengthening of present legislation and the introduction of new legislation.

**Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)-** this convention is being implemented.

**Country Policy Plan-** this is an agreement between the government of BVI and the Government of the United Kingdom which is revised regularly. The Agreement deals with the obligations of both parties and outlines the broad developmental policies for all the sectors of the territory.

## National Policies

At the national level, the current policies can be divided into those that are covered by legislation, those that relate to national development and finally those that are implemented by the various ministries and agencies. The related national policies, therefore, as they relate to legislation and the various sectors, are as follows:

**Legislation:** There are a few legislations that relate to forestry but are not implemented. The Protection of Trees and Conservation of Soil and Water Ordinance (1954), exists for the selection, demarcation and proclamation of areas which should constitute the permanent forest estate. This Ordinance also provides the legal basis for the publication of any regulations which may be desirable when forest management is introduced. A similar situation exists in the case of the Wild Birds Protection Ordinance (1959) and the Turtles Ordinance (1959). The National Parks Trust is a statutory body established under the National Parks Ordinance (1961) and charged with the management and development of all areas proclaimed under the Ordinance. As a consequence of these legislations various unwritten policies are implemented in the various sectors.

**National Development:** BVI in its draft Physical Development Plan(1996) outlined a number of policies and guidelines for managing the natural physical environment.

The strategic aim, as stated in the 1996 draft Plan, is to:

- identify areas and structures, natural or manmade, which must be conserved;
- ensure that the development of conservation areas are integrated with other areas of physical development, such as tourism;
- conserve and manage key resource areas while ensuring that development is in harmony with the natural environment;
- create avenues through which conservation areas can provide opportunities for productive and recreational activities for all sectors of society;
- promote the declaration and development of the National Parks as elaborated in the National Parks System Plan;
- promote an attitude of respect for the physical environment.

**Vegetation**

- Maintain existing vegetative cover and re-vegetation of exposed soils;
- reforestation of deforested areas with native species;
- use of site selection criteria for location of buildings on hillside areas;
- formulate adequate design standards and regulations that would determine plot size and plot coverage on hillside areas.

**Marine/Coastal Areas**

- Conservation of key environmental features viz., mangroves, salt ponds, dunes, sea grass beds, coral reefs, etc.;
- development of mechanisms for the management of the environment;
- formulation of legislation for environmental protection;
- establishment of monitoring stations;
- reduce the risk of pollution of ground and surface water resources by adopting measures to control the use, transportation and disposal of chemical substances and by improving the sewage systems;
- reduce the risk of marine pollution by prohibiting thermal discharge and the disposal of sewage and other toxic wastes in near shore waters;
- preparation of guidelines to assess the environmental impact of certain types of development;
- continue the testing of water resources for pollution levels;
- embark on a study of coastal erosion;
- guard against all forms of pollution resulting from mining activities through the use of operational standards.

**Quarrying and Mining**

- Grant no further permission for this type of land use change unless there can be no feasible alternative;
- specific location criteria to be elaborated for such use, viz. quarries as far as possible should not be located in, or adjacent to, scenic or tourism development areas;
- expedite the amendment of regulations and enforcement mechanisms for this type of development;
- all mine resources are to be used solely for local development;
- develop a reef management and mooring programme for the entire territory;
- develop legislative and basic standards for water-use.

**Scenic Quality**

- Protect unspoiled, scenic areas from unwarranted development;
- maintain the dominant scale of the natural environment by protection of major ridge lines, hillsides, and natural drainage systems (ghuts) from development and by use of non-structural methods for erosion control and the stabilization of landslide prone areas;
- control and regulate the form, type and scale of development along shorelines viz., comprehensive reclamation activity as opposed to piecemeal;
- formulate adequate legislative and regulatory mechanisms which will include standards and design criteria for reclamation activity.

**Legislation and Management**

- Prepare and promulgate comprehensive environmental legislation;
- develop environmental management programmes;

- define comprehensive policy guidelines which will aim at enabling the relevant agencies to include the coastal zone as an area requiring mandatory environmental consideration;
- identify permissible uses, development criteria and standards for marine and coastal development;
- preserve large stretches of undeveloped land in selected areas including coastal areas for recreational and conservation uses;
- financial resources should be allocated for implementing the required mechanism for environmental management.

**Recreation**

- Regulations will be introduced to ensure the best use of sites for recreational purposes;
- sites selected for recreational uses will be included in the relevant Local Area Plans.

**Conservation Areas**

- Identification of Special Conservation Areas (SCA): SCA are generally areas of high natural productivity, such as wetlands, areas of outstanding landscape quality, areas of special scientific interest due to the presence of unique flora and fauna, flood plain areas, public beaches, National Parks, or access along coastlines and all coral reefs within territorial waters;
- developers will be required to preserve within a development or subdivision, natural features which add value to the development and the community, such as large trees, water courses (ghuts), seaside parks, beautiful landscape, viewpoints, etc.

**Beach and Coast Preservation**

- Development along the coast will be designed to allow for public access;
- development along the seaward side of coast, such as roads, would be arranged so as not to obscure the seascape;
- any subdivision development along the coast which is not specifically designated as a harbour or industrial site must be setback from the high water mark. The distance required for setback will depend on the slope/gradient of the area, the nature of the substrate and prevailing oceanographic conditions. Buildings are to be setback at a minimum distance of 160 feet from the high water mark.
- no in-filling, cutting, or dredging of mangroves, wetlands or other marine structures shall be undertaken without the prior approval of the Development Control Authority in consultation with the Conservation and Fisheries Department or any other Authority;
- where it is considered that the actions of a developer are likely to result in environmental damage, the Authority may request an environmental impact assessment.

**National Parks**

- Certain areas with unique terrain, flora and fauna may be declared national parks. Such usage will not remove private ownership of land or prevent partial development; however, no large scale development will be allowed in such areas and any development permitted would have to blend into the landscape, to the satisfaction of the Planning Authority and the other relevant government agencies.

**Preservation of Amenities**

- Advertisements should be avoided in all special conservation areas except where they are directional signs. No building, structure, wall or fence, will be permitted which obscures the view of any area of scenic beauty.

**Wetlands**

- Wetlands are all areas of perennially water-logged soil supporting swamp or marsh vegetation, which serve as hatching and feeding grounds and shelter for all kinds of aquatic life and provide the basis for the productivity of much of our inshore fishery. The alteration of these areas for development purposes is not to be undertaken as such change destroys or significantly impairs basic wetland functions.

## Sector Policies

There is no formal forest policy in BVI and although one was proposed by Beard in the 1940's, this has not been adopted or followed. The forest policy recommended by Beard was and still is applicable today. Beard's proposed policy included provision for the following:

- to effect the permanent reservation of such areas of Crown Land (and private land) as are unsuitable for agriculture or as are desirable in the interests of science;
- to manage the Forest Resources in such a way as to ensure their maximum productivity;
- to educate the people in the most economic utilization of lumber;
- to carry out such experimental work as is required to implement the forest policy;
- to cooperate with agriculture for the better productivity of the land and in all schemes of soil and water conservation.

The other two related sectors are the national parks and protected areas and the fisheries and marine environment. While there are no written formal policies in these sectors most of the policies enunciated in the draft national physical development plan are in effect enforced and implemented by the agencies with responsibilities for same.

# 3. CURRENT ISSUES AND PROBLEMS

The current issues and problems of BVI can be summarized as follows:

**Physical Development Plan:** Although there is no formally approved development plan for the territory, a set of guidelines has been prepared and this is the basis used for the assessment of applications. The underlying principle of the guidelines is that any site may be developed for almost any purpose, provided that certain standards are observed. The guidelines do not deal with land-use and as a consequence they do not affect the distribution or type of development which occurs throughout the territory.

The preparation of a draft Physical Development Plan(1996), therefore attempts to address the above issues by providing an overall framework in which sectoral activities of both the public and private sector can be coordinated, land being the common resource upon which these activities occur.

The draft Plan is meant to be a strategic planning tool for facilitating and giving directions, so that it can contribute to economic efficiency and to the achievement of social goals and objectives. It describes the expected level of physical development in the BVI by the year 2011, based upon past and current growth and development trends in the BVI. It provides a framework for detailed planning and will require updating on a regular basis. The draft plan identified a broad zoning pattern for development but there is still an urgent need to identify a detailed zoning regime, so that critical watersheds, unique shrub vegetation, mangroves and steep slopes can be protected. Immediate approval and implementation of this plan is required.

**Legislation and Enforcement/Development:** Land tenure varies in BVI and enforcement of existing legislation with respect to land development varies. While it is apparently very easy to monitor and control development works on alien land holdings, this is not so easy on private and Crown lands.

**Flash Flooding:** During heavy rainfall, Tortola in particular is subjected to flash floods, as water runs rapidly down the slopes and into the ghuts that frequently overflow.

**Coastal Erosion:** The northern and north-western beaches go through an annual phase of erosion, most severe between January and April, when the North Atlantic storms create ground swells. Normally, the sand is only temporarily lost and is washed back gradually in the following months. More serious erosion results from man's interference with nature, particularly with sand removal from the beaches and also from removal of the vegetation.

**Protected Areas:** The Parks and Protected Areas System Plan (1986), identified some additional areas for protection and identified some critical areas considered biologically and economically critical to BVI. Further studies are required to determine appropriate protection and management measures (Appendix C).

**Grazing:** There are several farmers in the country who allow their livestock to graze freely. This results in considerable damage to trees and plants that are not protected by a fence.

**Flora and Fauna Studies:** While several studies have been done on some aspects of the flora and fauna of BVI, there is still an urgent need for a comprehensive study. This will ensure proper protection for endangered and endemic species. In addition, it will assist greatly in providing baseline information for environmental impact statements in relation to future development on the islands.

**Tourism and Recreation:** The Protected Areas Plan (1986) identified the following management issues that are inherent in tourism and recreation:

- destruction of coastal habitats for hotel construction and marina development.
- aggravation of natural coastal erosion through incorrect siting of hotels close to the beach.
- interference with the specialized breeding and nesting habitats of seabirds, turtles, and other wildlife.
- depletion of fisheries stocks especially lobster and conch which are heavily in demand by the tourism industry.
- coastal pollution, through incorrect and inefficient sewage treatment by shoreline hotels.
- impacts on coral reefs, seagrass beds and reef fishes from anchors, large numbers of snorkelers and divers and spear-fishers.

# 4. PROCESSES AND MECHANISMS OF POLICY FORMATION

The processes and mechanisms of policy formation in BVI can be divided into three levels. The first level of policy formation deals with the area of policies that deals with international and regional matters. The second level deals with national matters, while the third and final level deals with matters that relate directly to individual ministries or agencies. The following is an attempt to structure the processes and mechanisms as discerned by the author during discussions with the various contacts (Appendix D).

## International and Regional Policies

International and regional issues and agenda setting are driven externally and are taken aboard as an issue mainly at the Executive level. At times, the Administrative level is brought in but this is limited. This also applies to priority setting and option analysis. Implementation of the policy though, is primarily done at the Administrative level. Monitoring, control and evaluation are also driven externally by the institutions and organizations responsible for such matters. Matters dealt at this level are usually conventions, protocols and agreements.

## National Policies

National issues and agenda setting are identified not only at the Executive level but may arise out of an issue affecting the community. Priorities and option analysis are usually done both at the Administrative and Executive levels, however, decisions are taken mainly at the Executive level. Policy formation here relates mainly to the national agenda and as a consequence, is well monitored and evaluated. The process is usually initiated at the Executive level where the specific problem or issue is discussed and if a consensus can be reached, then a policy decision is made and handed down to the various ministries for implementation. However, if a consensus is not reached, a committee is usually assigned to research and develop a paper for discussion with relevant agencies and interest groups. This proposal is then forwarded to the Executive for ratification and approval. Once accepted, the policy is then transmitted to the line ministries for implementation. These are usually high-level policies with national implications.

## Sector Policies

At times there are sector issues and problems that are related directly to an institution and can be handled by the specific ministry. In such a case, the matter is then handled by the relevant Ministry with little or no involvement at the Executive level. Forecasting the setting of priorities, option analysis and decision making are all conducted at the Administrative level. The process may also involve a committee and the various stakeholders in all aspects of the policy formation. At times the process may be extended to include the Executive in the decision making prior to implementation. Notwithstanding the above, in some instances, a policy may just evolve within a Ministry because of past actions. In such a situation, the matter may never be discussed with other interest groups.

# 5. FORESTRY POTENTIALITIES

The forestry resources of the country are limited to shrub low forest and mangroves with a variety of unique biodiversity and ground cover. Protection of the watersheds and coastal areas so far has been adequate. However, with the recent thrust in the tourism and hotel industry, development will pose a threat to the remaining natural areas.

The demands of the forest and natural areas for services and products are not so much for its wood products, but more so for its value and function as an ecosystem. Consequently, a true balance is required to maintain both the terrestrial and marine ecosystems since these are the products that the tourist is interested in. At present, there is a great demand for these product ecosystems and this is reflected in the high prices of land for tourism facilities. The BVI comparative advantage comes from their attractions and closeness to the US Virgin Islands, as well as communication and transport to and from the islands. Over 60 percent of the tourists are interested in the boating and water-based activities. This advantage is expected to be maintained once the naturalness of the islands is protected. The marine life, fishing, nursery ground for fish and clear water are all a product of proper land-use practices and protection of critical watersheds.

The potentialities of BVI, therefore, lie with the protection and management of its critical watersheds, national parks and protected areas.

# 6. INSTITUTIONAL ARRANGEMENTS

The governmental agencies responsible for forestry related activities are the Department of Agriculture, that has direct responsibility for forestry, the Department of Fisheries and Conservation, that oversees mangroves and marine ecosystems and the National Parks Trust, that administers national parks and protected areas.

Private sector activity is limited to a resort reserve on Guana Island. The NGOs involved include the Virgin Gorda Garden Club, BVI Hibiscus Society, Botanic Society, and BVI Beautification Committee.

All these institutions are involved in environmental education and the planting of trees. The local chapters of Lions and Rotary Clubs also participate in various environmental activities.

The Department of Agriculture has a vacant post of Forestry Officer and this is expected to be filled in the near future. Two Forest Ranger posts have been proposed and this is presently receiving attention. In the meantime, all activities are conducted by officers other than foresters. The major works in protection are conducted by the National Trust and the Fisheries and Conservation Department.

## 7. POLICY STUDIES

There are no recent policy studies in relation to forestry. The only study done was a draft forestry policy by Beard in 1940, which is still applicable but has not been adopted. Kumar (1997) however, in his document on the "Mission and Function of the Department of Agriculture" identified the following policy related measures that required attention:

- establishment of a Forestry Division within the Department of Agriculture.
- revision and enforcement of the existing regulations.
- preservation of existing ground cover as well as re- afforestation.
- watershed protection to improve the quality and quantity of water.
- soil conservation measures on lands exposed for farming, as well as for other construction purposes.
- extensive tree planting for general beautification.

While the above does not capture the essence of a policy, it is indeed a step in the right direction. Policy definition for both national parks and protected areas and mangroves are not defined at the unit level, however, the policies and guidelines outlined in the draft Physical Development Plan (1996) cover a wide range of areas. It is necessary though that once these policies and guidelines in the draft Plan (1996) are approved that they be developed into sectoral policies for adoption and thereafter development and implementation of strategies.

## 8. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are made in respect of forestry and related activities in BVI:

- The Department of Agriculture, Department of Fisheries and Conservation and the National Parks Trust review the broad policies and guidelines within the draft Physical Development Plan (1996) and develop a detailed policy document for forestry, parks and protected areas including mangroves.
- That staffing be examined with respect to the management and protection of natural areas and appropriate measures be taken to adequately staff each unit.
- That a Forestry Division be established and adequately staffed.
- That the objectives and benefits of relevant Conventions and agreements be examined and appropriate action be taken to implement the action of each.

# APPENDIX A - COUNTRY PROFILE

**Form of Government:** A British dependent territory with a UK-appointed Governor who exercises power over defence, foreign affairs, the civil service and judiciary and certain financial matters.

**The Executive:** The Executive Council is composed of the Governor, currently the Honourable David McKilligan, the Chief Minister and three other Ministers. The Ministers are appointed from the party with the greatest number of seats by the Governor, on the advice of the Chief Minister. The Attorney-General is an ex officio member of the Legislative Council.

**Head of State:** Queen Elizabeth II, represented by the Governor.

**National Legislature:** Unicameral Legislative Council with a four-year term, currently composed of a speaker, elected from outside the Council by its members, the Attorney-General as an ex officio member and 13 directly elected representatives.

**Legal System:** Based on UK common law; Court of First Instance operative on each island; the Court of Appeal is in London.

**National Elections:** February 20, 1995; Next national election due by 1999.

**National Government:** The VIP holds seven of the 13 seats on the Legislative Council.

**Main Political Organizations:** Government-Virgin Islands Party (VIP); Opposition-Independent People's Movement (IPM); United Party (UP).

# APPENDIX B - BACKGROUND INFORMATION

**General:** The Islands of BVI lie east of Puerto Rico, between the Atlantic Ocean and the Caribbean Sea, forming part of the Lesser Antilles in the West Indies and is located between 18° 20' N and 18o 50' N latitude and 64° 18' W and 64° 51' W longitude.

BVI is a dependency of Great Britain and consists of Tortola, Virgin Gorda, Anegada, Jost Van Dyke and a number of small islets with an overall total area of approximately 153 $km^2$. The capital and only town in the group is Road Town which is situated on the south-eastern coast of Tortola. Tortola carries some 82 percent of the total population of about 18,722(1996) and the net growth rate is about 1.7 percent per annum. Overall, the Government owns 40 percent of the land, while 35 percent is owned by private citizens and 25 percent by expatriates. Anegada is owned exclusively by the Government but only 5 percent of Tortola is in Government ownership.

**Geology and Soils:** Most of the islands are hilly and of volcanic formation, except Anegada, which rises only about 10 m at its highest point. By comparison Tortola's highest point is 445 m, Virgin Gorda is 412 m and Jost Van Dyke is 321 m. The steep southern slopes of Tortola is drained by a number of ghuts, which cut through the valley and pour themselves into the sea. Drainage is less pronounced in most of the other islands, which are less frequented by human activity on the slopes, and where salt ponds frequently intercept drainage ways.

As oceanic islands, they have never been connected to a continent. Plants and animals arrived from the continents through accidental migration either through wind or water. The islands have not long been isolated from each other and essentially they are the peaks of drowned mountain ranges, now separated by a shallow sea. With the exception of Anegada which is of limestone, all the other islands are from ancient continental rocks, both volcanic and flows of metamorphosed sediments which have been lifted and highly distorted and folded. Major intrusions are diorites together with acid and basic variations which outcrop at intervals through the islands. These intrusions have allowed the formations of metalliferous veins, where in some cases in Virgin Gorda molybdenum and copper deposits have been found. The soil is frequently brown loams that is shallow, friable and often stony. Out-crops of bare rocks are pervasive while the deepest soils are found in some of the valleys of Tortola. Anegada on the other hand was more recently formed from coral growth and limestone accumulation. With its limestone cap, Anegada has very little soil and limestone out-crops are visible, particularly on the eastern end.

Throughout the islands, coral reefs have developed over volcanic sediments and perhaps have reached their greatest development between Virgin Gorda and Anegada. This coral growth is particularly responsible for the carbonate sand deposits that form many of the white sand beaches. In most of these areas, there is a dynamic sand movement, especially from November to April.

**Climate:** The mean annual temperature is about 24oC and mean monthly temperature varies from a maximum of about 30oC to a minimum of about 19oC. The islands have a subtropical climate. BVI are influenced by the trade winds, which blow consistently from east north-east to east. From December through February, the trade winds reach their maximum velocities, with speeds of 11 to 21 knots. By comparison, in September to December, the winds shift slightly to the east south-east. The islands have been damaged by hurricanes in the past. The rainfall is variable with the wettest months being between September and December. Rainfall data maintained by the Agriculture Station in Tortola give an average of 1160 mm annually. The mean annual rainfall is 1300 mm on Tortola, 1000 mm on Virgin Gorda and 850 mm on Anegada.

**Agriculture:** The islands are characterised by little arable land and low annual rainfall. Only 14 percent of the land is suitable for agriculture and is conducted mainly on a semi-subsistence basis. Production is mainly for home consumption with small surpluses marketed. The majority of farmers are mainly engaged in livestock production, however, pastures on steep slopes are poorly managed and water supply is a major problem. Crop production is confined to small scale production of vegetables, root crops and bananas. There are 194 registered farmers of which 100 are backyard farmers while the other 94 are commercial farmers. The number of livestock in the BVI is estimated as follows: 1860 cattle, 2155 sheep , 3064 goats, 950 pigs and 5000 poultry.

The main constraints to agricultural development are topography, higher wages in other sectors, age structure of the farmer, availability of water, lack of land-use plan, absence of an organized marketing system and infrastructure, poor technology, lack of training, lack of data and lack of funds.

# APPENDIX C - AREAS OF PARTICULAR CONCERN

In addition to the existing and proposed parks and protected areas, the following areas were considered biologically and economically critical to BVI development and will require further study (Parks and Protected Areas system Plan-1986):

- The Sir Francis Drake Channel including Norman, Peter, Dead Chest, Salt, Cooper, and Ginger Islands: the heaviest concentration of marine resource use occurs in these areas, which includes several existing and proposed protected areas.
- Balsom Ghut - north-east end, Tortola, watershed; boulder terrain.
- Josia's Bay - north shore, east end, Tortola: mangroves; seagrass beds; salt pond (bird habitat); leatherback turtle nesting.
- Paraquita lagoon - south shore of Tortola, east of Road Town: mangrove lagoon; sea-grass beds; hurricane shelter.
- Brown and Bunting Ghut and Pockwood Pond - south shore of Tortola, base of Sage Mountain: mangroves; salt pond bird habitat; fresh water lobster.
- The Dungeon - south-west shore of Tortola, east of Pockwood Pond: historic site; endemic species, Sida eggersii, a semi-deciduous tree, only six known specimens.
- Fort Charlotte - Fort Hill, south of Road Town: historic site.
- Carrot Rock - off south tip of Peter Island: unique Anole lizard; seabird nesting.

CRITICAL WATERSHED AREAS **(from Lettsome, 1981)**

- Butu Mountain, Tortola
- Chawell and Doty, Tortola
- Great Mountain, Tortola
- Sabbath Hill, Tortola

HURRICANE ANCHORAGES **(from Jackson, 1980)**

- Trellis Bay, Beef Island
- Paraquita Lagoon, Tortola
- North Sound, Virgin Gorda
- Sea Cows Bay, Tortola (small boats with shallow drafts)
- Maya Cove, Tortola (permanent anchorage generally close to capacity)

## Endangered Species

Two species of butterflies, one amphibian, 13 reptiles and 15 birds are also listed as endangered.

# APPENDIX D - CONTACTS

| | |
|---|---|
| Beckford, Fitzroy | Agriculture Station Manager, Virgin Gorda. |
| Blaine-Seal, Joy L. | Programme Coordinator, BVI National Parks Trust. |
| Brown, Sheila | Permanent Secretary, Ministry of Natural Resources and Labour. |
| Dechi, Wayne | Consultant Entomologist with the Department of Agriculture, Ministry of Natural Resources and Labour. |
| Freeman, Bernice | Agriculture Officer, Department of Agriculture, Ministry of Natural Resources and Labour. |
| Georges, Elton | Acting Governor BVI (Deputy Governor) |
| Kumar, S. Jammi | Consultant with the Development Planning Unit (former Chief Agriculture Officer). |
| Lettsome, Bertrand | Chief Conservation and Fisheries Officer, Conservation and Fisheries Department, Ministry of Natural Resources and Labour. |
| Malone, Michael | Statistical Officer, Ministry of Natural Resources and Labour. |
| Percival, Austin | Chief Agricultural Officer, Ministry of Natural Resources and Labour. |
| Phillip, Orville | Marine Biologist, Conservation and Fisheries Department, Ministry of Natural Resources and Labour. |
| Shirley, A. O. | Parks Manager, Sage Mountain National Park BVI National Parks Trust. |
| Smith-Abbot, Joseph | Deputy Director/Science Co-ordinator BVI National Parks Trust. |

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# FORESTRY POLICY OF THE CAYMAN ISLANDS

by Sheriff Faizool

## 1. INTRODUCTION

### Forestry in the Cayman Islands

**Elements of Forestry:** The elements of forestry in the Cayman Islands include trees and forest in support of agriculture, tourism, recreation and other cultural activities. They also include watershed protection, national parks, biodiversity and ecosystem maintenance, wildlife protection and ecotourism. Over 50 percent of the area is low-lying mangrove swamp. Much of the remainder is scrub forest able to withstand the drought imposed by the long dry season and the porous limestone rock. Large areas of mangrove swamp are still intact with some pressure for land reclamation. The agencies responsible for forestry and related matters include the Department of Environment, Department of Agriculture, Department of Planning and the National Trust.

**Re-afforestation:** There is no re-afforestation programme in place, but some denuded areas cleared for agriculture require planting with appropriate tree species. In addition, large land development should be planted with a few more tree species.

**Agroforestry:** There is some mixed agriculture with fruit trees in some parts of Grand Cayman and this approach should be encouraged. A few farmers are interested in apiaries and this should also be supported.

**Soil and Water Conservation:** The agencies responsible for soil and water are mainly the Department of Agriculture and the Department of Planning; they are concerned with proper land use and the conservation of soil and water. In this regard, a national workshop was coordinated during 1994 in which officers from various institutions and agencies were trained in the concepts and practices of soil and water conservation.

**National Parks and Protected Areas:** The National Trust for the Cayman Islands is a non-profit, membership-based, non-governmental conservation organization, established and operating under a statute passed in 1987. The Trust's mission is to preserve natural environments and places of historic significance for present and future generations of the Cayman Islands. It works to fulfil this mission through a variety of scientifically based nature conservation programmes and carefully focused historic preservation programmes, all supported by an active public education effort. The Trust's work is funded by membership dues, individual and corporate sponsorship and corporate donations, varying Government and NGO grants, retail sales and fund-raising events. Many local businesses assist the Trust with donations of services and significant discounts on goods.

Foremost in the Trust's environmental activities is a major initiative to establish a comprehensive system of protected areas in the Cayman Islands, both through Trust ownership of environmentally important land, and through support of, and participation in, the Government's system of Animal Sanctuaries and Marine Parks.

The National Trust Law (1987) provides the Cayman Islands' strongest mechanism for the protection of environmentally important land in perpetuity for the people of the Cayman Islands.

The work of the Trust is primarily conducted under the following programmes:

- **Land Reserve Programme:** This programme reserves lands for a system of nature reserves.
- **Biodiversity Programme:** This programme deals with herbarium and insectarium collections.

- **Visiting Scientist Programme:** This programme encourages experts to visit the islands and conduct on-going or new research.
- **Others:** These programmes include the Historic Plaque, Heritage Property and The Environmental Education Programme.

The Trust Reserves include 528 ha on Cayman, 55 ha on Little Cayman and 73 ha on Cayman Brac, totalling 656 ha. A further 138 ha of inland ponds and associated wetlands are protected as Animal Sanctuaries. In addition, 607 ha of mangrove wetlands are protected as an environmental zone. As of 1997, the combined area of protected lands total approximately 1453 ha (5.5 percent of the total land area).

**Forests Industries:** There is no primary or secondary wood industry on the islands. Farmers, at times, utilize trees from adjacent forest for fence post. No fuel wood or charcoal is taken out from the forested areas.

**Mangrove Swamps of the Cayman Islands:** The Cayman Islands have widespread mangrove and associated swamp lands. In Grand Cayman, more than 50 percent of the island is covered by swamp communities. Little Cayman also has extensive swamp areas; while Cayman Brac, dominated by a major outcrop of tertiary bluff formation rising to 40 m above sea level, has only very limited swamp lands.

**Rare and Endemic Plants and Animals:** There are many species and subspecies endemic to the Cayman Islands but some of these are of common occurrence within the islands and therefore, although of great scientific interest, are not severely in need of conservation efforts. Conversely, there are some Caribbean and even tropical species which need to be protected in the Cayman Islands because of their rarity elsewhere . Proctor (1984) lists 601 plant species found in the Cayman Islands and, of these, 21 species and varieties are considered endemic. Most of these are inland plants. The eight species of bats are the only living native mammals in the Cayman Islands. Of these, one appears to be an endemic subspecies. There are 46 species of birds breeding in the Cayman Islands, including 17 endemic subspecies. Only the extinct Grand Cayman thrush, *Turdus ravidus*, is regarded as a full endemic species. A total of three frogs, 15 lizards, nine snakes and one turtle (counting subspecies) are considered endemic.

**Cayman Islands Turtle Farm:** The Cayman Islands Turtle Farm, the only commercial turtle farm in the world, serves as an important visitor attraction, with some 285,000 tourists visiting the farm in 1996.

The farm incorporates conservation and tourism promotion through its turtle-release programme. Turtles are usually released to coincide with the annual observance of Pirates Week. This helps to replenish the wild population of turtles and relieves fishing pressure on the wild population by meeting some of the local consumption demands.

At year end, the farm's stock totalled 18,947 green sea turtles, including a breeding herd of 337,358 Kemps Ridleys, six hawksbills and one loggerhead.

The breeding herd is kept in a pond, from which the adult females emerge to lay their eggs at night, usually between May and October, on a man-made beach. They lay an average of 100 eggs at a time, and up to 10 clutches a season. The eggs are then collected as they are laid, packed in styro-foam boxes and are incubated until they hatch 60 days later. The farm became a government-owned operation in 1983, following 15 years of operation as Marculture Ltd., established in 1968. There are 22 employees, headed by a general manager.

**Agriculture:** The National Tree Crop Husbandry Programme, which began in 1995, resulted in increased output of mangoes, citrus fruit and bananas. Efforts continue during the year to improve the quality of domestic livestock, through the introduction of new breeds and the improvement of agricultural extension services. Cotton and sugar cane cultivation has died out and the output of coconuts has been greatly reduced by disease.

**Water Management:** The Water Authority has legal responsibility for the management and protection of groundwater resources in the Cayman Islands. There is an on-going comprehensive monitoring

programme. Groundwater pollution problems are investigated by the authority in conjunction with the relevant government departments and remedial efforts are monitored closely. The Water Authority supplies desalinated water, produced by the reverse osmosis process, to customers on Grand Cayman and Cayman Brac and operates a sewage collection and treatment service in the Seven Mile Beach area.

The service utilizes an osmosis plant with a production capacity of 61,000 US gallons per day and with a storage capacity of 0.6 million gallons. The authority operates a trucking service for customers outside the pipeline distribution area.

## Socio-Economic Profile

Gross Domestic Product (GDP) in the Cayman Islands, at US$1,012.4 million, increased by an estimated 5.5 percent in 1996. Growth in the tourism sector increased by 9 percent, and the financial services sector, supported by government's international advertising and promotional programme, continued its expansion during the year. Among major developments for the financial industry was the establishment of the Monetary Authority. This consolidated the functions of the former Financial Services Supervision Department and the Currency Board. A key effect was to strengthen the regulatory regime. The newest addition to the range of financial services was the Cayman Islands Stock Exchange, which opened on 2nd January, 1997. Ten of Cayman's leading law and accountancy firms and mutual fund administrators became registered listing agents.

Banking remains at the forefront and the insurance sector continued to enjoy an increase. There are 29 domestic insurers. The mutual funds industry remains a major growth area with fee income in 1996 again exceeding expectations by a significant margin. A growing number of offshore companies continue to take advantage of Cayman's efficient and expert services. Construction was among the other sectors of the economy which performed well. Approximately $215 million of planned new construction investment was approved in 1996. Building construction activity increased in all areas, except for the commercial and industrial sectors. The value of approved developments for the residential sector was $57 million, and for government, $12 million. New government projects in 1996 included the construction of the Heath Services Complex and the Macro Giglioli Building, which house the departments of the Environment, Environmental Health, and the Mosquito Research and Control Unit.

Inflation grew by 2.1 percent, the lowest in the past ten years, while the 4.9 percent unemployment rate recorded in 1995 was the lowest since 1989. Cayman has traditionally had an imbalance of "visible" trade, the export of services, mainly tourism and financial, continued to offset the deficit. The national budget for 1997 was approximately $255 million (US$305 million) and the debt service payments for 1996 were 5.1 percent of recurrent revenue, well below the recommended ceiling of 10 percent.

Widening its horizons, the sister island of Cayman Brac was positioned as an emerging market. Late in 1996, Government instituted special incentives to encourage investment on that island. Import duties on building materials have been removed, as well as stamp duty on some land transfers. Assets of Cayman's 572 banks, including 47 of the world's top 50, rose to US$504 billion, up from US$464 billion.

The Caribbean region's tourism industry faced a number of difficulties in 1996 but the Cayman Islands continued to experience growth at a rate equal to, or exceeding that of the rest of the region. Tourism remains buoyant, maintaining its share of the market with rising annual figures. In 1996, tourist arrivals topped the one-million mark and visitors spent an estimated $310 million. The number of visitors attracted to high quality market continues to improve and Cayman receives strong accolades from travel agents, dive publications and travel-trade press. In accordance with the Tourism Management Policy adopted in December 1994, the unit created procedures to ensure the quality and consistency of services and products provided on all three islands.

GDP in the Cayman Islands is estimated to have increased by 5 percent during 1996, about the same as 1995, mainly due to the result of intensification of the rate of public sector investment. Tourism growth slowed somewhat, influenced by some weakness in the US market in the second half of the

year. The offshore financial sector continued to attract new business, particularly mutual fund registrations, with the growth in activity in the sector prompting the passage, during the year, of a bill to enable the establishment of the Cayman Islands Stock Exchange. Agricultural production continued to expand, supported by assistance provided to farmers by the Government. In the public sector, a process of reform was initiated, while the surplus on the Central Government current account declined as current expenditure grew faster than revenue.

The relatively high GDP growth rates which have been a feature of the Cayman Islands' recent economic performance are expected to continue into the medium term. In the absence of adverse external developments, visitor arrivals should continue to grow at about 5 percent per annum and growth in operations in the financial services' sector is expected to continue, particularly with the commencement of the Cayman Islands Stock Exchange. A relatively high rate of activity is expected to be maintained in the construction sector throughout most of 1997, reflecting both private and public sector investments. All of this added up to a singularly buoyant year for the Islands, where per capita income remains among the highest in the world.

## 2. CURRENT FORESTRY POLICIES

Current forestry policy of the Territory can be divided into two major areas. Firstly, those policies that are international in nature and relate to conventions and agreements that the territory has decided to implement; and secondly, there are policies that are national in nature that the Government has implemented or is in the process of doing so. The international conventions and agreements that Cayman are party to are as follows:

### International Policies

**International Conventions and Agreements:** As a dependency of Britain, the Territory in most instances is party to many of the international and regional agreements and conventions. Follow-up action with respect to many of the conventions are not in keeping with agreed schedules.

**Ramsar Convention**: The Cayman Islands were a signatory to the Ramsar Convention for the Protection of Wetlands of International Importance in 1976. Five Ramsar sites have been proposed: Meagre Bay Pond and Booby Cay in Grand Cayman and the Rookery and two other wetland areas in Little Cayman. Only Meagre Bay Pond is fully protected under local legislation (the Animals Law).

**CITES**: The Endangered Species Protection and Propagation Law of 1978 is the enabling legislation for the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), to which the Cayman Islands were a signatory in 1979. The Appendices of CITES list species world-wide which could be adversely affected by international trade. All these are of relevance to the Cayman Islands as trade could be routed through the Islands, especially species from South and Central America. Endemic Cayman Islands plant species listed by CITES include all *Orchidaceae* and succulent species of *Euphorbiaceae*. In addition, all *Cactaceae* are covered by CITES. There are eight recorded cactus species in the Cayman Islands and although none are endemic, many are otherwise found only in limited areas of Cuba and Jamaica. All cycads are listed, which include Cayman's Zamia pumila and all Aloe species, which include Aloe vera. Cayman Island animal species in CITES Appendix I are parrots, crocodiles, sea turtles and iguanas. In Appendix II are the whistling duck, the miniature boa Tropidophis, black coral, all stony corals and coral products. Recently, the queen conch (*Strombus gigas*) has been added to Appendix II.

**Cartagena Convention:** The Cayman Islands were a signatory in 1985 through the Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean. The second meeting of the contracting parties to this convention was held in Kingston Jamaica in 1990. A contingent from the Cayman Islands attended a protocol concerning Specially Protected Areas and Wildlife (SPAW).

**Bonn Convention:** In 1985 the Cayman Islands were a signatory to the Bonn Convention for Conservation of Migratory Species of Wild Animals. The Animals Law and the Endangered Species Law are probably sufficient to meet the requirements of this convention.

**Marpol Convention:** In 1978 the Cayman Islands, via the UK, became a signatory to the International MARPOL Convention which, under Annex V, seeks to address the problems of oil, chemicals, sewage and garbage pollution.

**Country Policy Plan:** This is an agreement between the Government of the Cayman Islands and the Government of the United Kingdom which is revised regularly. The Agreement deals with the obligations of both parties and outlines the broad developmental policies of all the sectors of the territory.

## National Policies

At the national level, the current policies can be divided into those that are covered by legislation, those that relate to national development and finally those that are implemented by various ministries and agencies. The related national policies, therefore, as they relate to legislation and the various sectors, are as follows:

**The Development and Planning Law (1971):** Under this law, destruction of trees and woodland, as well as mangrove stormbelts, can be prevented. Section 35 relates to parks and bird sanctuaries, protecting marine life, reefs and terrestrial vegetation and preventing pollution. Regulations also cover protection of storm belt and scenic shoreline, as well as landscaping. However, the protection of individual plants and vegetation associations and the provision of bird sanctuaries, possible under this law, have never been implemented.

**The Animals Law (1976):** All import and export of live and dead animals are controlled by this law. 'Animals' include mammals, reptiles (but not turtles), amphibians, birds and insects. Iguanas and all birds, except game birds, are protected under section 68. Section 69, defines game birds but it is amended by 1989 regulations to include only the white winged dove (*Zenaida asiatica*), the white crowned pigeon (*Columba leucocephala*) and the blue winged teal (*Anas discors*). A closed season from 1st February to 31st July and catch limits of 12 pigeons and 3 teal per person per day are designated. Under Section 70, Meagre Bay Pond and Colliers Pond are made Animal Sanctuaries. Regulations can be made under Section 74 to cover future sanctuaries, protected species and hunting.

**Endangered Species Protection and Propagation Law (1978):** Trade in animals and plants is restricted under this law which is based on the CITES lists of endangered fauna and flora. However, turtling by traditional methods for local consumption is allowed. Various amendments concern breeding in captivity, artificial propagation, killing for export etc.

**The Marine Conservation Law (1978):** The first sections of this law concern the setting up and operating of a marine conservation board and fisheries inspectors. Sections 6-8 prohibit taking lobster under 3.5 inches (9cm), limit the catch to 5 per person or 20 per boat and declare a closed season from February to July inclusive. Section 10, limits conch catches to 15 per person or 20 per boat. Sections 12-15, concern fishing methods, banning the use of noxious substances and the taking of any marine life by scuba divers. They also limit the use of nets and set maximum spear fishing catches (6 fish and 5 lobsters per day). A 1985 amendment makes even the possession of an unlicensed spear gun an offence. Section 16, outlines licensing requirements for collecting marine organisms. Exporting marine life and controlling effluents and sewage are addressed under sections 17 and 18. Section 24, allows for regulations covering a wide variety of topics, including protection of black coral. Protection of turtles is covered under regulations made in 1978 and 1985. These prohibit any disturbance of turtles or turtle eggs during the breeding season (May-October inclusive), but provide for licensed traditional fishing with turtles being inspected before being killed.

**Marine Conservation (Marine Parks) Regulations 1985:** These regulations provide for the establishment of marine parks around all three islands. Three categories of restricted areas are described as follows : a) replenishment zones where no fish, conch or lobster may be taken by any

fishing method, except fry and sprat with cast nets; b) marine park zones where no boats may be anchored and no marine life, of any kind, may be taken by any method except line fishing from the shore or beyond the drop-off and netting fry and sprat; c) environmental zones where boats may not anchor or exceed five knots and the taking of any form of marine life is prohibited. Schedules attached to the regulations describe nine replenishment zones, four marine park zones and one environmental zone around the coasts of Grand Cayman.

**The Development Plan 1997**: This is an outline of the policies on which planning should be based in the Cayman Islands. It contains many environmental considerations. The importance of mangrove, storm belt, reefs, beaches and national parks (both marine and terrestrial) are stressed and the unspoiled nature of Little Cayman and the Brac's bluff noted. The Development Plan (1997) identifies the following policy guidelines:

## *Ecology*

(a) The beauty of the coral reefs and the remarkable clarity of the coastal waters which are a national asset, may be adversely affected by the operation of dredging the sea bed in certain areas to provide fill material for filling land for development and roads. A careful balance must be struck between what is a valuable natural feature and a desirable development. Areas of particular concern include wetlands, virgin forests and beaches.
(b) A comparable situation arises where developments are proposed in mangrove wetlands. Consideration must be given to the type of mangrove that would be disturbed, to the ecological and biological effects and to whether the storm and hurricane protection of the Islands would be reduced. New developments proposed in these mangrove areas or wetlands may be subjected to environmental analyses.
(c) The beaches of the Cayman Islands are an important national asset in which the rights of the public must be protected. Steps must be taken to prevent the removal of sand from the beach, to preserve the beach ridge and to control the spreading of litter.

## *Fresh Water Supplies*

The principal method of obtaining water for drinking and domestic purposes in the Cayman Islands is by public water supply and the individual collection and storage of rainwater from the roofs of buildings. Under some parts of the Islands there are water lenses, directly supplied by the abundant (60 inches per year) rainfall, into which wells are sunk. The sort of development which is taking place and is likely to continue, i.e. a high proportion of hotels and apartments, makes for heavier per capita consumption and a lesser supply facility than is the case with individual houses and this, coupled with the demands of industry and a rising standard of living, makes it necessary to examine improved methods of fresh water collection, storage and distribution.

## *Mangrove Buffer Zone*

A Mangrove Buffer Zone will be defined and developmental works will be controlled. Within the Red and predominantly red mangrove areas, a Mangrove Buffer Zone will be protected from development.

## *Scenic Coastline Zone*

Certain lengths of the coastline which have been identified as being a high landscape or scenic value forming a particularly attractive feature of the Island, are designated as Scenic Coastline and will be subject to the following provisions:

- the land will be conserved basically in its natural state,
- the ownership of the land will not be affected, and
- development which is consistent with other policies will be permitted.

It will be the duty of the Authority to ensure that the open character of scenic coastline land is preserved, in particular, that of the beaches and also to safeguard the public's right to use the beaches and to gain access to them through public rights of way. The panoramic views and vistas provided by these coastlines are natural assets which are to be safeguarded for present and future generations.

### *Land Above Water Lenses*

- residential development will in general be permitted over a water lens,
- agricultural development will in general be permitted over a water lens,
- an industrial development will be permitted over a water lens only in the following circumstances:
  (a) if the development is for small industrial land use,
  (b) if it requires a supply of readily available water,
  (c) if it can be demonstrated that this facility cannot be provided elsewhere on the Island.

Strict conditions will be imposed to ensure that the water in the lens will not be contaminated by the development or by the effluent therefrom and that the quantity of water used will not deplete the lens to the disadvantage of existing or future users.

### *National Community Parks*

National and community parks will be identified. It is recommended that some of these be developed by joint public/private partnerships.

**Sector Policies:** There is no formal forest policy for the Cayman Islands, however, local legislation and activities of the Department of Planning and Development, National Trust, Department of Agriculture and Department of the Environment cover broad spectra for the management and administration of the forest and related resources. While there are no written formal policies in these sectors, most of the policies enunciated in the Development Plan (1997) are in effect enforced and implemented by the agencies with responsibilities for same.

## 3. CURRENT ISSUES AND PROBLEMS

Overall, the administration has identified most problems and has established programmes to adequately address the issues and problems. The major problems identified in discussion with various officials are as follows :

**Coral Reefs and Coastal Waters:** The beauty of the coral reefs and the remarkable clarity of the coastal waters which are a national asset, may be adversely affected by the operation of dredging the sea bed in certain areas to provide material for filling land for development and roads. A careful balance must be struck between what is a valuable natural feature and a desirable development. Reef degradation and over-use is increasing everyday. It is important to assess the carrying capacity of each site and enforce all regulations.

**Mangrove Wetlands:** The mangrove wetlands are also under threat as potential land areas for development. Consideration must be given to the type of mangrove that would be disturbed, to the ecological and biological effects and to whether the storm and hurricane protection of the islands would be reduced. Mangrove destruction continues at an alarming rate. The removal of virgin mangroves will result in irreparable damage to the reefs and nursery grounds. In addition, the Development Plan(1997) reduced the potential buffer mangrove from 642 ha to 219 ha . This is a 52 percent change from the 1977 Development Plan. This aspect of land reclamation definitely needs further study before additional development and approvals are given.

**Beaches:** The beaches of the Cayman Islands are an important national asset in which the rights of the public must be protected. Steps must be taken to prevent the removal of sand from the beach and to preserve the beach ridge.

**Water:** The principal method of obtaining water for drinking and domestic purposes in the Cayman Islands is by public water supply and the individual collection and storage of rainwater from the roofs of buildings. Under some parts of the islands there are water lenses, directly supplied by the abundant rainfall, into which wells are sunk. If current levels of development continue in the future, then it will become necessary to examine improved methods of fresh water collection, storage and distribution.

**Public Open Space Zone:** Public Open Space is land in which government has acquired, or is proposing to acquire, rights of ownership or use for the benefit of the public. New acquisitions will normally be in accordance with the provisions of the Law or by agreement, but where alternative solutions cannot be found, compulsory acquisition by Government may be necessary.

**Policy Definition:** While there are some policy definitions at various levels, these are not clear to the administrators or the public. There is urgent need to develop a process for policy definition and to define within the short term a clear policy in relation to forestry and related areas. It is important to involve all stakeholders in this process.

**Environmental Legislation:** While related legislation has attempted to keep apace with development and changes there is an urgent need to revise and update all environmental legislation. In addition, the Cayman Islands through its dependency on Britain, is party to many agreements and conventions but enabling legislation and follow-up action is lagging. There is urgent need to set schedules and action plans in motion.

**The Development Plan (1997):** The Plan identifies various goals and objectives, however, it is simply a zoning outline and a true planning philosophy has not been detailed. For example, what is the limit, in terms of number of hotels and accepted level of tourist visitation to the islands. In addition, at what point infrastructural development would cease.

# 4. PROCESSES AND MECHANISMS OF POLICY FORMATION

The processes and mechanisms of policy formation in Cayman can be divided into three levels. The first level of policy formation deals with the area of policies in international and regional matters. The second level deals with national matters, while the third and final level with matters that relate directly to individual ministries or agencies. The following is an attempt to structure the processes and mechanisms, as discerned by the author, during discussions with various contacts (Appendix C).

## International and Regional Policies

These issues and agenda setting are driven externally and are taken aboard as an issue mainly at the Executive level. At times, the Administrative level is brought in but this is limited. This also applies to priority setting and option analysis. Implementation of the policy though, is primarily done at the administrative level. Monitoring, control and evaluation are also driven externally by the institutions and organizations responsible for such matters. Matters dealt at this level are usually conventions, protocols and agreements.

## National Policies

At this level, issues and agenda are identified not only at the Executive level but may arise out of an issue affecting the community. Priorities and option analysis are usually done both at the Administrative and Executive levels, however, decisions are taken mainly at the Executive level. Policy formation here relates mainly to the national agenda and as a consequence, is well monitored and evaluated. The process is usually initiated at the Executive level where the specific problem or issue is

discussed, and if a consensus can be reached, then a policy decision is made and handed down to the various ministries for implementation. However, if a consensus is not reached, a committee is usually assigned to research and develop a paper for discussion with relevant agencies and interest groups. This proposal is then forwarded to the Executive for ratification and approval. Once accepted, the policy is then transmitted to the line ministries for implementation. These are usually high-level policies with national implications.

## Sector Policies

At times there are issues and problems that are related directly to a sector and can be handled by the specific ministry. In such a case, the matter is then handled by the relevant Ministry with little or no involvement at the Executive level. Forecasting the setting of priorities, option analysis and decision making are all conducted at the Administrative level. The process may also involve a committee and the various stakeholders in all aspects of the policy formation. At times the process may be extended to include the Executive in decision making, prior to implementation. Notwithstanding the above, in some instances, a policy may just evolve because of past actions. In such a situation, the matter may never be discussed with other interest groups. While policies are developed from time to time, this is not formalized and institutionalized at the executive level nor the administrative level. There is urgent need to establish a process and formalize policies for various sectors .

# 5. FORESTRY POTENTIALITIES

Conservation of rare and interesting species is impossible without setting aside some of the habitats that they favour. Old undisturbed habitats tend to be richer in species than areas which have been disturbed and then allowed to regenerate, even when they look similar to the original. Thus, representative primary forest areas should be preserved whenever possible. Much of the mangrove is virgin, but most of the dry woodland which appears to have been undisturbed, are, therefore, of particular interest.

Relatively large areas need to be preserved as many species require extensive feeding grounds, as well as more restricted breeding sites. Populations will decline if suitable sites become fewer with development. The Cayman Islands are important for migratory birds and reduction in their feeding grounds will result in competition with local species.

Almost half of Grand Cayman is mangrove swamp. This is important as a source of nutrients for the surrounding lagoon and marine environment, and also as a nursery area for juvenile fish and marine invertebrates. In addition, it is an important feeding and breeding site for egrets, herons, ducks and a host of other birds, as well as, numerous invertebrates. Large areas including all mangrove zones should be preserved to protect these functions.

Marine habitats around all the Islands, although supporting very few known endemic animals and plants, are now well protected by the system of marine parks.

The forestry resources of the Cayman Islands are limited to shrub, low forest and mangroves, with a variety of unique biodiversity and ground cover. Protection of watersheds and coastal areas has so far been adequate. However, with the recent thrust in tourism, hotel development has increased and poses a threat to existing natural areas.

The services and products of the forested and natural areas are in demand, but not so much for wood products, but more so for its value and function as an ecosystem. Consequently, a true balance is required to maintain both the terrestrial and marine ecosystems, since this is the product that the tourist is interested in. At present, there is a great demand for these ecosystems and this is reflected in the high prices of land for tourism facilities.

The Cayman's comparative advantage comes from its attractions, as well as, communication and transport to and from the Islands. A majority of the tourists are interested in boating and water-based activities. This advantage is expected to be maintained once the naturalness of the Islands is

protected. The marine life, fishing, nursery ground for fish and clear water are all a product of proper land-use practices and protection of critical watersheds. The potentialities of the Cayman Islands, therefore, lie with the protection and management of its mangroves, its marine areas and other protected areas.

## 6. INSTITUTIONAL ARRANGEMENTS

Institutional arrangements for the management and administration of forestry and related matters are mainly with government ministries, private sector and local bodies. The governmental agencies responsible for forestry related activities are the Departments of Environment, the Department of Agriculture, the Department of Planning and the National Trust .

The Department of Planning oversees and monitors all national developmental activities and sets broad guideline policies for other governmental and local institutions to follow. The Department of Agriculture supervises all agricultural activities, as well as promoting soil and water conservation. Environmental and marine areas are controlled by the Department of the Environment. The Department of the Environment is also charged with facilitating responsible management and sustainable use of the natural environment and resources of the Cayman Islands, through various environmental protection and conservation programmes and strategies. Some programmes are as follows:- environmental assessment and reviews; research and monitoring; reef damage and underwater safety inspections; marine parks maintenance; oil spill response capabilities; environmental awareness and public education.

Parks and protected areas are managed by The National Trust. The Trust is a statutory, non-profit membership organization, whose mission is to preserve the natural environment and places of national significance for present and future generations.

Private sector activity in managing the environment is limited. Some of the major NGO groups are as follows:- Lions Club of Tropical Gardens, Rotary, Lions, Kiwanis and the Garden Club of the Cayman Islands. All these institutions are involved in environmental education and the planting of trees.

## 7. POLICY STUDIES

There is no specific policy study for the forestry sector, however, some related recent studies, such as the Development Plan which was completed in 1997, cover outlines for some policies and strategies for the sector. Brunt and Davies(1994) Natural History and Biogeography of the islands, while not a policy document, gives a comprehensive background on the natural resources of the Islands. During 1996, Ahamad completed a land capability study for the Islands.

The Department of the Environment is at present conducting various studies which, when completed, will be the basis for policy decisions in the sector. A regional study in progress is the Caribbean Coastal Marine Productivity (CARICOMP) scientific programme to study land-sea interaction processes. The programme, based on a cooperative network of marine laboratories, parks and reserves, focuses on understanding productivity, structure and function of the three main coastal ecosystems in the Caribbean: mangroves, seagrasses and coral reefs.

## 8. CONCLUSIONS AND RECOMMENDATIONS

The major conclusions and recommendations with respect to forest and related areas are as follows:

- While there are some policy definitions at some levels, this is not clear to the administrators, as well as the public. There is urgent need to develop a process for policy definition and to define within the short term, a clear policy in relation to forestry and related areas. It is important to involve all stakeholders in this process.

- Reef degradation and over-use is increasing everyday. It is important to assess the carrying capacity of each site and enforce all regulations.
- While related legislation has attempted to keep apace with development and changes, there is an urgent need to revise and update all environmental legislation.
- The Cayman Islands, through its dependency with the United Kingdom, is party to many agreements and conventions but enabling legislation and follow-up action is lagging. There is urgent need to set schedules and action plans in motion.
- Mangrove destruction continues at an alarming rate. The removal of virgin mangroves will result in irreparable damage to reefs and nursery grounds. In addition the Development Plan (1997) reduced the potential buffer mangrove from 642 ha to 219 ha. This is a 52 percent change from the 1977 Development Plan. This aspect of land reclamation definitely needs further study before additional development and approvals are given.
- The Development Plan (1997) identified various goals and objectives, However, it is simply a zoning outline and a true planning philosophy has not been enunciated. For example, what is the limit in terms of hotels and total tourist. At what point infrastructural development would cease.
- All natural areas should be assessed as to their uniqueness and importance to the total ecosystem of the Islands and if necessary, be placed under protection

# APPENDIX A - COUNTRY PROFILE

**Form of Government:** A British dependent territory; the UK appointed governor exercises power over defence, foreign affairs, the civil service and judiciary and certain financial matters. It is the third written constitution granted to the Islands by the British Crown, though there is a history of over 160 years of representative government in the Islands.

**Head of State:** In 1971, the title of Administrator was changed to Governor, a reflection of the Islands' political development. The present constitution came into effect on 22 August, 1972 and provides for the government of the Cayman Islands as a colony under the sovereignty of Her Majesty Queen Elizabeth II of the United Kingdom of Great Britain.

**Executive:** By 1972, there was a need to place more responsibility in the hands of elected representatives. A new constitution in 1972 replaced the former Executive Council of three official members and three nominated members with an Executive Council of three nominated members and four members elected from and by the Legislative Assembly. The three official members, appointed by the Governor, are the Chief Secretary, the Attorney General and the Financial Secretary, who also have seats in the Legislative Assembly.

Each member of the Executive Council is allocated a portfolio of responsibilities by the Governor. Under the principle of collective responsibility, all Executive Council members are obliged to support in the Legislative Assembly on any measure approved by the Governor-in-Council, unless the Governor has given prior approval to act otherwise.

The Governor presides over meetings of the Executive Council, whose advice he must normally take except in matters of defence, external affairs, internal security, the police and the civil service. The Governor is not required to consult the Executive Council on matters too unimportant to necessitate it, or in matters of urgency, or if it would be prejudicial to the national interest, although he must subsequently report such action to the Executive Council.

**National Legislature:** A draft of a proposed new constitution was circulated prior to the General Elections in 1992. This enabled candidates standing for election to indicate their views on the proposed changes and the public to show its support accordingly. Notably, these amendments included adoption of a ministerial system and a fifth elected member of Executive Council, but excluded appointment of a chief minister. Members of the Legislative Assembly have responsibility for ministries with permanent secretary implementing policy and overseeing administration of the departments within the ministries. Members of the Legislative Assembly were increased from 12 to 15.

The elected members of the Legislative Assembly represent the six districts of the Islands, four each from George Town and West Bay, three from Bodden Town, two from Cayman Brac and Little Cayman and one each from North Side and East End.

**Legal System** Based on English common law; Court of appeal in London.

**National Elections:** November 20,1996; next national election due by 2000.

**National Government:** The concept of formal political groupings, which took hold in the 1992 election campaign, became firmly established with all but 16 of the 44 candidates belonging to one of the four "teams". The National Team retained its majority in the Legislative Assembly taking 10 of the 15 seats.

# APPENDIX B - BACKGROUND INFORMATION

## General

The Cayman Islands are a dependency of Great Britain, in the West Indies. Grand Cayman, the largest and most important of the three Cayman Islands, lies about 300 km north-west of Jamaica. It has an area of 197 $km^2$ and a population in 1996 of 35,000.The population grew by 4.5 percent from 1995. The other two islands, Little Cayman (26$km^2$; population 116) and Cayman Brac (36$km^2$; population 1300), lie close to each other, about 110 km east of Grand Cayman.

A seven mile stretch of beach extending northwards from George Town, the capital to West Bay is the chief tourist attraction. The centre of George Town has been rebuilt. There are modern, multistory buildings. In addition, the old, tiny harbour has been enlarged. Grand Cayman is connected by air to Jamaica, Costa Rica, Houston in Texas and Miami. The Cayman Islands were colonized in 1734 by British settlers from Jamaica. The islands remained a dependency of Jamaica until 1959, when they became a self-governing member of the Federation of the West Indies. In 1962, they became a British dependency again.

## Vegetation of the Cayman Islands

Brunt and Davies(1994) indicated that the dry evergreen woodland in Grand Cayman occupies areas in the east and central part of the islands and to the north of South Sound. They also reported that it has been virtually destroyed in the West Bay area, while in Little Cayman it is found in the centre of the island south of Sparrow Hawk Hill, at Paradise End and inland from Jackson's Bay and Salt Rocks. They also found in Cayman Brac that the dry evergreen woodland occupies areas throughout the island on the Bluff Formation. The dry evergreen littoral woodland on Grand Cayman occupies the eastern part of the island while remnants also occur in the George Town area. On Little Cayman, it occupies the north-facing gentle slope some 200 m wide bordering the northern shore and the Bluff ridge further inland. The differences in aspect and exposure resulting in differences in floristic composition. On Cayman Brac, the formation is mainly found on the higher ground. On Grand Cayman, the occasional tree which emerges above the canopy is often the ubiquitous red birch *(Bursera simaruba)*. The widespread distribution of the species, particularly where the thicket has been disturbed is probably due to its fire resistance, its low timber-value and because it is used for live fence posts. The trees generally are thin boled and mostly thin stemmed, with a tendency to branch near the ground. Some trees, *Swietenia mahagoni* and *Picrodendron baccatum* occur with notably short, large-diameter stems. *Swietenia* and *Bursera* are truly deciduous, while some of the other species loose a high proportion of their leaves in the dry season. The formation, however, is predominantly evergreen.

# APPENDIX C - CONTACTS

| | |
|---|---|
| Austin, Tim | Assistant Director, Research and Assessment, Department of the Environment. |
| Boxhill, Brian | Director of Statistics. |
| Burton, Fred | Scientific Programmes Manager, National Trust for the Cayman Islands. |
| Ebanks, Kenneth | Assistant Director Planning. |
| Ebanks-Petrie, Gina | Director, Department of the Environment. |
| Eswick, Adrian | Agronomist , Department of Agriculture. |
| McTaggart, Rick | Director ,Water Resources. |

# POLÍTICA FORESTAL DE CUBA

**by E.G. Linares**

## 1. INTRODUCCIÓN

El archipiélago cubano está conformado por las islas de Cuba y de la Juventud y más de 1600 cayos, ocupando una superficie de 110 982 $km^2$ y 5746 Km de costas, tiene una población de 11038602 habitantes y una economía actual basada en lo fundamental en la producción Azucarera, Turística, Agrícola y Minera.

Cuba se divide en 14 provincias y 169 municipios con una densidad poblacional de 100 $hab/km^2$, del total de población el 49% son mujeres, la esperanza de vida es de 75 años, 72.9 para los varones y 76.5 para las mujeres.

La flora cubana es muy rica, con alrededor de 6000 especies; se han introducido más de 200 para diferentes fines que junto a las autóctonas forman parte integral de los planes de reforestación que se desarrolla en el país y además se ejecuta un programa de plantación para el rescate de especies amenazadas, vulnerables o en peligro que garantiza la presencia de nuestra rica flora.

La fauna silvestre de nuestro archipiélago posee 321 especies, de éstas 42 pertenecen a anfibios, 106 a reptiles y 34 a mamíferos, del total 158 son endémicos y nos visitan 143 especies de aves migratorias, así como se han introducido 11 especies de mamíferos. El carácter insular del País, su clima favorable y su ubicación geográfica caracterizan una fauna y flora silvestres con un alto nivel de endemismo, lo cual unido a las existencias de representantes inferiores de fauna y flora en alto número nos sitúa en un lugar privilegiado en la posesión de una alta biodiversidad, orgullo de nuestro país y que obliga a todas las entidades nacionales y la población en el trabajo y de conservarla, cuidarla e incrementarla.

En la actualidad los bosques de Cuba ocupan una superficie de 2,4 millones de ha, lo que representa el 21% del territorio nacional. De esta superficie corresponden 1954,4 miles de hectáreas a bosques naturales, distribuidos en 16 tipos de formaciones y 454,4 miles de hectáreas de plantaciones.

En 1959 se crea el Departamento Forestal del Ejército Rebelde y comienza un trabajo fuerte en pos del desarrollo forestal y conservación de los recursos existentes, llegando en 1996 a contar con un 21% del área total cubierta de bosques con 454,0 mil ha de plantaciones establecidas.

En 1997 se elabora y aprueba el Programa de Desarrollo Forestal hasta el 2015 para el sector forestal y se trabaja en la elaboración de la Política Forestal del país que garantice un manejo y desarrollo del recurso forestal bajo los principios del manejo forestal sostenible y con fundamento en el establecimiento de plantaciones como primera opción para la obtención de maderas.

Todas las áreas que corresponden al patrimonio forestal, cubiertas o no, están agrupadas en una de las 7 categorías de bosques establecidas en el país, se encuentran registradas en los proyectos de ordenación y tienen manejos recomendados.

No se cuantifican y por tanto se excluyen de estas cifras, las áreas en que el recurso forestal no es el manejo principal aunque son áreas con altos volúmenes de árboles forestales y considerables volúmenes de madera como las aproximadamente 120,0 miles de hectáreas de cultivos de café en la montaña, áreas dedicadas a frutales y áreas consideradas como potreros y de tenencia ganadera que tiene recursos forestales y con una cubierta forestal por encima del 50%.

Las tenencias del patrimonio forestal cubano son bastante diversificadas aunque el mayor volumen corresponde a las Empresas Forestales Estatales y a la Empresa Nacional de Protección para la Flora y la Fauna (ENPFF), existen además áreas forestales que administran otras empresas agrícolas, el sector cooperativo agrupado en las Unidades Básicas de Producción Cooperativa

(UBPC), las cooperativas de producción agropecuaria (CPA), y el sector privado agrupado en las cooperativas de créditos y servicios (CCS), campesinos individuales, además son tenedores de tierras usufructuarios de tierras agrícolas en cuyo patrimonio existan recursos forestales y organizaciones de las instituciones armadas y entidades científicas.

# 2. EL SECTOR FORESTAL Y ENTIDADES RELACIONADAS

## El Sector Forestal

Estructura Administrativa del Sector Forestal.

A partir de las medidas tomadas por el Gobierno Cubano en las transformaciones de la propiedad, tenencia y usufructo de las tierras del país, la diversificación de los productores, los cambios en la estructura administrativa del Estado, la Ley de Inversiones Extranjeras, el Estado decidió separar las funciones estatales de las productivas a partir del Decreto Ley 147 que perfecciona los Organismos de la Administración Central del Estado.

Lo anterior ha significado profundos cambios en el Sector Forestal de acuerdo a lo establecido desde hace más de 30 años en el país, lo que unido a los acuerdos de la Cumbre de Río, que sobre los principios forestales, los cuales Cuba como país firmante está comprometido a cumplimentar, se crea la siguiente estructura administrativa del Sector Forestal.

1. La Dirección Forestal Nacional con los Servicios Estatales Forestales en Provincias y Municipios.
2. Se creó el Grupo Agroindustrial de Cuba con 29 Empresas Forestales Integrales.
3. Empresa Nacional para la Protección de la Flora y la Fauna que administra 634.0 miles de hectáreas de Áreas Protegidas o en proceso de declaración y posee un total de 24 establecimientos.
4. El Instituto de Investigaciones Forestales (IIF) y sus 7 Estaciones Experimentales.
5. El Consejo Consultivo para el Manejo Forestal Sostenible.
6. El Cuerpo de Guardabosques de la República de Cuba.

### *Funciones de la Organización del Sector Forestal*

Las 5 primeras estructuras son subordinadas al Ministerio de la Agricultura (MINAG), entidad que por el país tiene la responsabilidad de administrar y desarrollar el Sector Forestal y el Cuerpo de Guardabosques, aunque internamente relacionado a éste es dirigido por el Ministerio del Interior.

#### A. La Dirección Forestal Nacional

Esta estructura funciona desde enero de 1997 y está conformada por la Dirección Nacional y las direcciones del Servicio Estatal Forestal en las 14 provincias del país y 165 municipios. Ha ido mejorando sus funciones logrando ejecutar las tareas estatales dentro del Sector Forestal encargadas al Ministerio de la Agricultura, aplicando lo establecido en la legislación forestal actual, el Decreto Ley 136 del Patrimonio Forestal y de la Fauna Silvestre, así como el Decreto 180 sobre las Contravenciones del Decreto 136 y otras leyes, disposiciones, instructivos y regulaciones relacionadas con el recurso y patrimonio forestal.

Esta organización es una institución estatal no subordinada a ninguna estructura productiva que responde por los manejos y acciones que se ejecutan y planifican en el patrimonio forestal independientemente del tenente y el régimen de propiedad y en cada instancia orienta y controla el cumplimiento de la Política del Estado para el fomento, manejo y utilización sostenible de los recursos forestales, la flora y la fauna silvestres.

## B. Grupo Agroindustrial Forestal (FORCUBA)

Este grupo está compuesto por 29 Empresas Forestales. Tienen bajo su responsabilidad el peso fundamental como mayor tenente del patrimonio forestal, en el fomento, manejo y uso de los recursos forestales del país, la producción forestal de los productos madereros y no madereros y su transformación primaria, garantizar la producción para satisfacer las necesidades del país y lograr con sus propios ingresos el desarrollo vertiginoso del Sector Forestal y en su conjunto con las otras entidades y factores públicos vinculados al Sector Forestal y comprometidos con la forestación, incrementar el patrimonio forestal al 27% del área total del país.

A este grupo se le ha subordinado recientemente la Unidad Nacional de Proyecto e Inventario Forestal que tiene que ejecutar la Ordenación reiterada de todo el patrimonio forestal del país.

## C. La Empresa Nacional de Protección de la Flora y la Fauna

Esta entidad posee el 95% de las Áreas Protegidas del país con 634 miles de hectáreas bajo su administración, que representa el 6% del Territorio Nacional y ha ido transformando su trabajo y hoy existen en todas sus áreas planes de manejos aprobados que contribuyen en primer lugar con la protección, conservación y desarrollo de nuestra flora y fauna silvestres así como su ordenación.

## D. Instituto de Investigaciones Forestales

Este Instituto y sus 7 Estaciones Experimentales trabajan bajo un programa de investigaciones en todo el manejo integral del Sector Forestal. Tiene una experiencia acumulada de 30 años con un servicio técnico de alto nivel científico.

Esta institución de forma contractual presta servicio técnico de producción, fomento y manejo forestal al Grupo Agroindustrial Forestal.

## E. Consejo Consultivo para el Manejo Forestal Sostenible

Mediante la Resolución 307/97 del Ministerio de la Agricultura del 16 de julio de 1997 se crea el Consejo Consultivo para el Desarrollo Forestal Sostenible en el Nivel Central de dicho ministerio como órgano consultivo y de asesoramiento para la rama forestal, el cual lo preside el Viceministro para el Área Forestal.

El Consejo Consultivo está integrado por funcionarios y especialistas de diferentes dependencias del Ministerio de la Agricultura y de instituciones afines con la actividad forestal.

Entre otras dicho consejo tiene las siguientes funciones:

Asesorar al Estado y al Gobierno, a través del Ministerio de la Agricultura en la elaboración de las políticas, estrategias y programas para el desarrollo sostenible de los recursos forestales, de la flora y la fauna silvestres; participar en la elaboración, evaluación y propuesta de planes, programas y acciones concretas para el manejo y aprovechamiento de los recursos forestales, de la flora y la fauna silvestres incluyendo las relacionadas con los Programas Especiales; participar en la elaboración, evaluación y propuesta de regulaciones de carácter jurídico y técnico-metodológicas para la rama forestal, la flora y la fauna silvestres; etc.

Se estableció crear esta misma organización en cada una de las provincias del país.

## F. Cuerpo de Guardabosques

Está dirigido por el Ministerio del Interior, siendo la entidad responsable de aplicar las contravenciones en el Sector Forestal que están legisladas.

Ejecuta sus labores y se agrupa de acuerdo a zonas de mayor recurso forestal y más vulnerables a peligros de depredadores. Es la salvaguarda del Estado para proteger el patrimonio forestal y

coordina la integración de todos los tenentes, usuarios y vecinos del bosque como principal medida para la conservación de este recurso, coordinando las acciones entre todos los sectores con intereses en los recursos forestales. Dentro de su estructura se encuentra la organización de la prevención, el control y extinción de los incendios forestales.

Juntas Directivas de los Macisos Montañosos.

En los 4 macisos montañosos existentes en el país y en el humedal más importante (la Ciénaga de Zapata), que constituyen ecosistemas de alta fragilidad y estratégicos, se han creado las Juntas Directivas que son un soporte para el desarrollo social y la conservación de nuestras montañas, realizando una gran labor en las coordinaciones y el uso sostenible de los recursos forestales y ambientales de estas zonas, sirviendo además, como garantía para el sostenimiento de la diversidad biológica y los planes económicos.

# ENTIDADES RELACIONADAS

## A. Ministerio de Ciencia, Tecnología y Medio Ambiente (CITMA)

Es el organismo de la Administración Central del Estado (OACE) que posee la responsabilidad, sobre la base de la Ley de Medio Ambiente, de ser el rector de las actividades que se ejecuten en los recursos naturales. La Ley de Medio Ambiente es una Ley marco que establece las regulaciones y acciones a ejecutar en los recursos naturales del país, entre ellos el bosque y los relacionados con éste. Existe el Centro Nacional de Áreas Protegidas como dependencia del Ministerio de Ciencia, Tecnología y Medio Ambiente que regula las acciones en las áreas protegidas que son administradas por diferentes organismos y se trabaja en una ley para esta actividad con un carácter metodológico y gestor de política.

El Instituto de Ecología y Sistemática (IES), es la entidad de este Ministerio encargado de ampliar los conocimientos sobre la diversidad biológica, mediante estudios sistemáticos y ecológicos integrales, propiciando su conservación y uso sostenible en los ecosistemas naturales y de reemplazo, incrementando la contribución al desarrollo científico y socio-económico en nuestro país y el Caribe.

En Cuba existen oficialmente declaradas 37 Áreas Protegidas en un total de 334500 ha con sus correspondientes planes de manejo. Existen, además, en diferentes fases de declaración y estudio 82 Áreas Protegidas de significación nacional y 133 de significación local. También están propuestas otras áreas con una extensión de aproximadamente de 450,0 miles de hectáreas que, aunque no están declaradas, funcionan como tal.

## B. Instituto Nacional de Recursos Hidráulicos (INRH)

Existe el Instituto Nacional de Recursos Hidráulicos a partir de la Ley de Aguas Terrestres, la cual establece las regulaciones correspondientes con este recurso, ya sean las aguas subterráneas como las superficiales en cauces y embalses y está dividido territorialmente en todas las provincias del país con una estrecha relación con el Sector Forestal por el trabajo que se ejecuta en las cuencas hidrográficas existentes, así como los trabajos y actividades forestales a desarrollar para el establecimiento de las fajas forestales hidrorreguladoras en los cauces y embalses del país.

En Cuba existen 632 cuencas hidrográficas, 203 grandes presas y alrededor de 800 micropresas. La capacidad de embalse existente en el país es de 7500 millones de $m^3$ de agua, las que son utilizadas fundamentalmente para el abasto a la población y el riego en la agricultura.

### C. Ministerio del Turismo (MINTUR)

El Ministerio del Turismo agrupa 5 Cadenas Turísticas con un gran número de hoteles los que recibieron en 1997 algo más de 1170,0 miles de turistas y se espera que en 1998 se llegue a 1,4 millones para disfrutar de las atracciones paisajísticas y naturales existentes, por las ofertas veraniegas de las numerosas playas de alta calidad, bien conservadas y de riquezas inigualables de sus fondos marinos, otros para practicar el ecoturismo, la caza deportiva, etc. y que de una forma u otra actúan en el medio natural y en especial en el bosque, constituyendo uno de los peligros potenciales en el agresión al medio ambiente natural.

Existe coordinación entre el CITMA, el MINAG y Turismo para evitar daños al recurso boscoso pero indudablemente es un riesgo que tiene hoy la mayor atención de las entidades responsables.

### D. Sector Privado

El sector privado del país no tenía grandes influencias en la tenencia del recurso forestal, pues aproximadamente el 90% del patrimonio forestal pertenece a entidades estatales.

Sin embargo, a partir de 1993, con la creación de las Unidades Básicas de Producción Cooperativa y la entrega de tierras en usufructos a pequeños productores fueron traspasadas al sector privado las producciones de aproximadamente el 40% de las tierras cultivables del país y como es lógico existen cantidades apreciables de recursos forestales en tierras administradas por usufructuarios que ha obligado a establecer resoluciones legales complementarias hasta tanto sea aprobada la nueva Ley Forestal que recoge todas estas transformaciones.

### E. Asociación Nacional de Agricultores Pequeños (ANAP)

Ésta es una organización social no Gubernamental que agrupa de forma voluntaria a los cooperativistas de las cooperativas de producción agropecuaria (CPA), a productores individuales (propietarios y usufructuarios) organizadas en cooperativas de créditos y servicios (CCS) o en forma independiente.

Esta organización, representada en todos los municipios del país, participa y apoya a los productores cooperativos e individuales en el establecimiento de sus planes de producción y acopio de productos agrícolas y forestales.

### F. Minería

Mediante el Ministerio de la Industria Básica se realizan los trámites correspondientes, relacionados con la Industria Minera del país, sobre todo, aquellas áreas forestales o de vocación forestal que poseen yacimientos de minerales o existen extracciones minerales.

La Asamblea Nacional del Poder Popular, máximo órgano legislativo del país, aprobó en diciembre de 1994 una moderna Ley de Minas que establece las obligaciones a cumplir en las minas existentes y en las prospecciones, así como en la restauración de los terrenos minados.

### G. Instituto de Planificación Física

Es el organismo que tiene la atribución y la responsabilidad de realizar el ordenamiento Territorial y el Urbanismo que constituye una función pública que regula y controla la utilización del territorio. Además, tiene la responsabilidad de formular, dirigir y controlar la aplicación de la política referida al uso y destino del suelo.

### H. Instituciones Armadas

Desde el mismo triunfo de la Revolución (enero de 1959), el Ejército Rebelde, antecesor de las actuales Fuerzas Armadas Revolucionarias, presta atención al programa de reforestación con fines ecológicos, las instituciones armadas amplían sus actividades forestales en correspondencia con las normas establecidas. Estas instituciones tienen Empresas Agroforestales Militares que son tenedoras de tierras para abastecerse de productos cárnicos, vegetales, alimentos y medios para las instituciones armadas.

## 3. POLÍTICA GUBERNAMENTAL PARA EL SECTOR FORESTAL EN CUBA.

### A. Sistema de Gobierno y Estructura Institucional

A partir de 1976 se establece en Cuba, con la promulgación el 24 de Febrero de ese año de la Constitución de la República, un sistema de órgano de gobierno estructurado desde la zona, el Municipio hasta la Nación en los Órganos Locales del Poder Popular (OLPP), el cual está dirigido por el Consejo de Estado y por el Consejo de Ministros.

Nuestro país, según establece la División Política Administrativa (DPA) aprobada, se encuentra dividido en 14 provincias y 169 municipios y éstos a su vez en pequeños órganos con funciones coordinadoras y de apoyo al Gobierno local, denominados Consejos Populares.

La Asambleas Municipales del Poder Popular se constituyen, por un período de dos años y medio, con todos los delegados electos directamente por la población y de ellos son elegidos el Presidente y demás miembros del Consejo de Administración Municipal.

Las Asambleas Provinciales del Poder Popular, constituidas por 5 años, mediante la candidatura elaborada por las organizaciones de masas y aprobada por las Asambleas Municipales, la cual se somete a votación de todos los electores de la provincia en cuestión. A partir de los electos se eligen el Presidente y demás miembros del Consejo de Administración Provincial.

Simultáneamente se procede al proceso de elección de los diputados a la Asamblea Nacional del Poder Popular. La candidatura para esta Asamblea se elabora y aprueba en igual forma que las Asambleas Provinciales, formando parte de la misma delegados municipales y una cantera de personalidades de todas las esferas económicas, científicas y sociales del país (incluyendo estudiantes).

Estos candidatos a diputados se someten a votación directa y secreta por todos los electores del país. Concluido este proceso se constituye la Asamblea Nacional la que elige al Presidente, Vicepresidente y Secretario de la misma. Esta Asamblea como primer paso, elige al Consejo de Estado, integrado por un Presidente, un Primer Vicepresidente, cinco Vicepresidentes, un Secretario y 23 miembros más.

El Presidente del Consejo de Estado es a su vez, Presidente del Consejo de Ministros o sea Jefe de Estado y de Gobierno. Los Vice-presidentes del Consejo de Ministros y demás miembros (Ministros), son designados por la Asamblea Nacional a propuesta del Presidente del Consejo de Estado.

### B. Ministerio de la Agricultura

El Ministerio de la Agricultura es el responsable de la política agraria del país, así como del uso y tenencia de los suelos, independientemente del sistema de propiedad.

El Ministerio de la Agricultura es la entidad responsabilizada con la silvicultura del país, mediante el Viceministerio Forestal, la cual es ejecutada a partir de las Delegaciones de la Agricultura en las Provincias y los Municipios.

En cada una de estos niveles de dirección está subordinado el Sector Forestal como principal responsable de la ejecución de todas las actividades silvícolas, desarrollo, fomento y aprovechamiento forestal.

Existe la legislación agraria y forestal que establece la obligatoriedad de los tenentes de tierras en reforestar los suelos con vocación forestal, lo que está contenido en los preceptos de la nueva Ley Forestal y que indudablemente falta mucho camino por recorrer para su total aplicación en lo fundamental por la falta de recursos de los tenentes, para las inversiones en la actividad forestal.

## C. Comisiones de Reforestación

Por el Decreto No. 197 de 16 de enero de 1995 se dispuso la creación de la Comisión Nacional del Plan Turquino - Manatí como Comisión Intergubernamental subordinada al Comité Ejecutivo del Consejo de Ministros, presidida por el Ministro de la Agricultura e integrada por los Ministros de los organismos de la administración central del Estado vinculados a la montaña y al Sector Forestal. Mediante la Resolución 332/95 del Ministerio de la Agricultura se establece el funcionamiento de dicha comisión y las de las Comisiones Provinciales y Municipales; teniendo entre sus funciones el responder por el Programa Nacional de Reforestación.

Estas comisiones tienen la responsabilidad a cada instancia de proponer el plan a ejecutar en cada territorio, exigir por su cumplimiento y el chequeo sistemático de los niveles de ejecución y las coordinaciones para el apoyo de esa tarea impulsando el trabajo de reforestación por entidades públicas, en la protección de cuerpos de agua, creación de bosques energéticos, bosques productores, conservación del medio y propagandizar el cuidado de los recursos naturales.

Dichas comisiones son presididas en cada instancia por el Presidente de la Asamblea Provincial o Municipal y sus Vicepresidentes son en esas instancias el Delegado de la Agricultura y del Ministerio de Ciencia, Tecnología y Medio Ambiente y la integran las entidades tenedoras de tierras y organismos políticos y de masa en cada instancia.

Estas comisiones trabajan regularmente y se chequea con objetividad la marcha del programa silvícola en cada territorio.

## D. Estrategias

El país ha desarrollado un esquema de Programa Forestal Nacional hasta el año 2015 por el cual trabaja el Sector Forestal, que incluye llegar al 27% del área cubierta de bosques y abastecer al país de las necesidades de madera, modernizar la industria primaria de la madera, incrementar el nivel de elaboración de los productos forestales y diversificar el uso de los productos no madereros para incrementar el valor agregado del recurso forestal.

Desde el año 1959 el país ha dado un vuelco en la atención al Sector Forestal en primer lugar al cuidado y desarrollo del recurso forestal.

Existen las directivas para completar el Programa Nacional Forestal donde se refleje la participación de todos los factores que influyen en la actividad forestal.

A principios de este siglo, más del 50% del territorio nacional estaba cubierto de bosques y en lo fundamental con especies de alto valor económico, el cual fue paulatinamente destruyéndose por el incremento de la frontera agrícola, la utilización del recurso forestal como combustible, el uso despiadado de los recursos forestales y la carencia de una política forestal que preservara y conservara los recursos forestales, lo cual trajo como consecuencia la disminución acelerada de los recursos forestales y en el año 1959 sólo quedaba el 13,4% del área total cubierta de bosques y estos en muy mal estado, carentes de especies valiosas y todo de bosque secundario bastante degradado.

# 4. CONTENIDO DE LA POLÍTICA FORESTAL ACTUAL DE CUBA

## A. Indicaciones al Sector Forestal

El Gobierno cubano ha dado las indicaciones precisas para elaborar la política del Programa Nacional Forestal y su seguimiento sistemático así como las líneas para su cumplimiento

El Jefe del Estado, Fidel Castro expresó en la Cumbre de Río, "La Deforestación y la pérdida de la biodiversidad a ella asociada constituyen hoy una preocupación de toda la humanidad".

En Cuba el Partido y el Gobierno han otorgado una alta prioridad al asunto forestal, lo que ha permitido no sólo detener, sino además revertir el proceso de deforestación y convirtiendo el país en poseedor de una tasa de forestación positiva.

En la actualidad ya está elaborado el Programa Forestal del Sector Forestal hasta el año 2015 que ha sido aprobado por el Gobierno y los organismos de la Administración Central del Estado y debe a finales de 1998 presentarse el Programa Nacional Forestal definitivamente.

El Programa establecido por el Sector Forestal (ya en ejecución) tiene su base en la autogestión. Con las ganancias obtenidas se debe lograr el desarrollo y la reproducción ampliada más el presupuesto que brinda el Gobierno, que está en el orden de los 27 millones de pesos anuales y otros 5 millones para el resto de los sectores que participan en las actividades de fomento forestal, sin contar las necesidades para la ocurrencia de incendios o catástrofes naturales.

La estrategia actual considera la utilización de tierras susceptibles de dedicarse a nuevas plantaciones forestales ascendentes a 500,0 mil hectáreas, lo que posibilita llevar el área cubierta de bosques hasta cerca del 27% del territorio nacional, con lo cual las áreas dedicadas a plantaciones sobrepasan el millón de hectáreas, que representan el objetivo fundamental del Programa hasta el 2015.

## B. Recursos Forestales Existentes

Las existencias actuales de maderas en pie ascienden a 126 millones de metros cúbicos con un incremento anual de 7,5 millones de metros cúbicos. Existen en Cuba más de 200 especies maderables, de las cuales unas 30 son de importancia económica.

Los niveles actuales de explotación forestal son del orden de 1,8 a 2,0 millones de metros cúbicos sólidos anuales y el 65% de ellas se destinan a leñas de uso directo y producción de carbón vegetal.

Cada cubano en la actualidad le corresponde 0.21 ha de bosques, de los cuales recibe beneficios directos o indirectos.

Se considera la utilización del potencial del recurso forestal que el país ha acumulado como resultado del trabajo de fomento y protección de bosques en los últimos 37 años y aprovechar las condiciones de Cuba para insertarse en el mercado internacional mediante el manejo intensivo de especies maderables tropicales de rápido crecimiento y amplio espectro de uso comercial. Se contempla satisfacer los requerimientos del mercado interno, sustituir importaciones y generar los ingresos necesarios para el desarrollo del propio sector, entrada de divisas al país, incrementando considerablemente el aporte al Producto Interno Bruto (P.I.B).

Este programa establece incrementar el papel de protección y conservación de la diversidad biológica que representa el bosque, además la obtención de la divisa necesaria para la inversión en la plantación de algo más de 240000 ha dedicadas a la protección de cuencas, fajas protectoras, conservación de la fauna y protección del litoral costero que deben ser ejecutadas por la agricultura, rehabilitación y mejora de 356000 ha de bosques naturales secundarios para el manejo forestal sostenible, el tratamiento silvícola a más de 250000 ha de plantaciones que hoy la necesitan y el enriquecimiento y mejora de 200000 ha de bosques naturales secundarios degradados.

Se prevé en el programa que a finales del período la producción de madera crecerá en 2,5 veces a la actual y el 78% procederá de plantaciones. El 52% de la madera será destinada a la industria y en la actualidad es solo el 13%.

Este programa se corresponde con los principios de desarrollo sostenible enunciados en la Cumbre de Río en 1992.

## C. Premisas consideradas para el Sector Forestal

Como premisa se establece la posibilidad del Sector Forestal de lograr un desarrollo sostenible, que requiere divisas para el fomento de plantaciones productivas y los ingresos para obtener los recursos necesarios para los propósitos de conservación de los recursos forestales y los demás valores en ellos contenidos y la forestación de áreas con fines protectores que son de alta prioridad y la continuación de los trabajos de investigación forestal que ya posee más de 30 años de experiencia, son puntales para el logro de las premisas a obtener.

El Gobierno cubano considera la actividad forestal en el futuro con una importancia decisiva en la Economía Nacional, por lo que se ha decidido elaborar e iniciar el reenfoque del Programa Nacional Forestal con la participación de todos los sectores del país, con indicadores productivos, económicos y ambientales a tener en cuenta, que incluirá la valoración del recurso forestal (productos madereros y no madereros), así como otros bienes y servicios que brindan los bosques.

El programa elaborado para el Sector Forestal presenta algunas preocupaciones fundamentalmente en el cumplimiento en fecha del mismo, pues contiene las necesidades del desarrollo del propio programa para las inversiones indispensables en su reproducción ampliada, así como las inquietudes que puedan producirse por la aplicación de leyes foráneas (Helms-Burton), que limiten la aplicación de la Ley de Inversión Extranjera existente en el país por la no participación de inversionistas extranjeros en las negociaciones conjuntas y la no obtención de financiamientos para llevar a efecto este programa.

La estrategia seguida en el programa elaborado fue la orientación emanada de la máxima dirección del país, con la creación de un grupo de trabajo para su elaboración y la circulación en todas las entidades involucradas con la aprobación del Comité Ejecutivo del Consejo de Ministros. Este programa fue chequeado sistemáticamente en 1997 por este alto nivel de dirección, el cual continúa haciéndolo en 1998.

El Estado, en su control sistemático de los programas del país, exige para el cumplimiento de los mismos, al organismo rector de esta tarea, que es el Ministerio de la Agricultura y éste a su vez al Sector Forestal.

Los grupos hoy implicados en el cumplimiento del programa establecido son el Sector Forestal compuesto por 35000 personas, 1200 profesionales y más de 2000 técnicos medios, que están directamente vinculados a este programa.

El Programa Nacional Forestal, que está en proceso de elaboración, implica a todos los tenedores de tierras con recursos forestales y/o con vocación forestal, los habitantes del bosque, aquellos que habitan en sus límites, los que usan el recurso forestal y toda la sociedad en general.

Desde que se implantó en 1987 el nuevo Sistema de Reforestación con la participación de diferentes organismos, los poseedores de tierras y los diferentes factores públicos, el nivel de conocimiento y de criterios de la sociedad en el interés por el bosque ha crecido, influido por la educación ambiental que ha ido adquiriendo la población y el conocimiento público de los múltiples beneficios del bosque y lo insustituible del recurso forestal tanto por las necesidades del ser humano en su calidad de vida social como lo imprescindible de los bosques para garantizar la supervivencia en la Tierra.

Esto trae como resultado el interés de toda la sociedad por el recurso forestal y se convierte en una preocupación y análisis constante en los órganos legislativos a todos los niveles y la sociedad en su conjunto.

No existe una contradicción abierta en este sentido en el país, pues es conocido por la sociedad y los diferentes factores públicos de la prioridad y ocupación del Gobierno y el Estado por el ambiente en general y el recurso forestal en particular.

El desarrollo del Sector Forestal está directamente relacionado con el resto de las ramas de desarrollo del país.

En primera línea el Estado cubano establece los parámetros para el cumplimiento de las medidas ambientales a todos los programas de desarrollo del país, con la obligatoriedad de la evaluación ambiental a toda inversión que se ejecute.

La política de Cuba por voluntad de su pueblo, se basa en la existencia de un solo Partido en el Poder que tiene bien claro establecido en su plataforma política las líneas ambientales y recoge desde su creación la Política Forestal del Estado que chequea sistemáticamente su cumplimiento y logra una estabilidad en las acciones a ejecutar en el Sector Forestal.

El Gobierno tiene bien definida en su política social y económica el componente forestal como chequeo constante de las actividades comprendidas en el desarrollo del país, teniendo presente el Sector Forestal por la importancia para la vida normal de la sociedad que posee el recurso forestal, no sólo social sino también económico.

En la política exterior está bien claro el principio de autodeterminación de nuestro Estado en los recursos naturales y entre ellos el bosque con el certero lineamiento de su utilización racional bajo el principio del manejo sostenible y el incremento del área forestal y los volúmenes de maderas existentes.

Es necesario precisar que en el ámbito de la sociedad cubana actual no se aprecia por los diferentes factores de influencia en el recurso forestal una contradicción antagónica entre la Política del Estado y otros criterios de algún grupo social.

El país cuenta para el manejo de sus recursos forestales y los bosques con una alta estabilidad en sus cuadros y su política establecida desde el año 1959 con directivas hacia el recurso forestal que ya tiene una línea de trabajo y experiencia de 38 años en la línea de desarrollo, cuidado y utilización del recurso forestal.

En el año 1970 se incorporó al trabajo forestal en Cuba el primer ingeniero forestal y hoy son más de 1000 los existentes.

Como producto de la política del país, anualmente el Estado entrega una cantidad como promedio (en los últimos 10 años) de 40 millones de pesos anuales para las inversiones silvícolas y que ha mantenido a pesar de la difícil crisis económica que se ha enfrentado durante la década del 90.

Existe la carrera universitaria de Ingeniería Forestal y el nivel de enseñanza especializada para técnicos medios, las que se han seguido presupuestándose por el Estado para la formación de los profesionales forestales. Se han creado 3 facultades de montaña donde se forman ingenieros para el trabajo y el desarrollo integral en los frágiles sistemas montañosos.

## D. Presupuesto Estatal para el Sector Forestal

Las inversiones han ido perfeccionándose tratando con ello de crear una política de incentivos que mejore y estimule a los forestales en los trabajos de fomento y manejo.

Desde finales de 1996 se establecieron dos nuevas resoluciones del Ministerio de Finanzas y Precios, una para el nuevo financiamiento de la Silvicultura, que establece el financiamiento total del costo más el 30% del valor real para las plantaciones de ciclo largo, tanto productoras como

protectoras, siempre que obtenga un logro del 80% o más y para todos los sistemas económicos y tenentes de tierras, independientemente al régimen de propiedad. Establece autofinanciamiento a través de créditos bancarios para las plantaciones de ciclo corto (hasta 7 años), con el 4% de intereses para el sector privado y el 6% para las empresas estatales pagados al momento de la comercialización y por los cuales no se pagan impuestos forestales para el instante de su comercialización y la segunda es la que establece el sistema impositivo para la actividad forestal.

El Estado financia todas las actividades y gastos de ejecución de las medidas de protección forestal, tratamientos silvícolas y reconstrucción de bosques degradados y el producto de ese manejo que se comercialice, es exento de impuestos.

El país ha dado y continúa financiando el programa de investigaciones forestales como objetivo primario en el desarrollo forestal nacional.

## E. Legislación Forestal de Cuba

En Cuba existe una larga tradición legislativa en el Sector Forestal que se remonta desde la época colonial en el siglo pasado, donde se dictaron ordenanzas reales de los Reyes de España, encaminadas en lo fundamental para utilizar las maderas preciosas cubanas en los castillos de la Metrópolis. Desde 1900 y hasta 1959 se dictaron un grupo de leyes, decretos y otros instrumentos jurídicos contentivos de una doctrina silvícola técnicamente bien conciliada, pero que lamentablemente nunca fueron aplicadas.

Es a partir de 1959 que comienza a ejecutarse acciones prácticas y reales para el cuidado y desarrollo del patrimonio forestal.

En la actualidad los principales cuerpos jurídicos que están vigentes son: el Decreto Ley No. 136 del 3 de Marzo de 1993 "Del Patrimonio Forestal y la Fauna Silvestre" y el Decreto Ley No. 180 "Contravenciones de las Regulaciones sobre el Patrimonio Forestal y la Fauna Silvestre".

Además de los decretos vigentes se cuenta con un numeroso cuerpo de resoluciones ministeriales inherentes a la actividad forestal, así como una serie de leyes y decretos que norman actividades relacionadas con los bosques, tales como la Ley de Minas, los Decretos Leyes de Aguas Terrestres, de Sanidad Vegetal y de Suelos y la Ley 81 del Medio Ambiente, aprobada en la última legislatura de la Asamblea Nacional del Poder Popular, que como Ley Marco regula y establece las acciones para el uso y protección de los recursos naturales en las cuales ocupan un lugar determinante los recursos forestales. A la par de la Ley Forestal se trabaja aceleradamente en la legislación de las Áreas Protegidas y las Zonas Costeras.

Las transformaciones explicadas sobre el régimen de propiedad, los principios forestales acordados en la Cumbre y el manejo forestal sostenible que se decidió aplicar han obligado por necesidad a redactar una nueva Ley Forestal, introducir en ellas todas las necesidades actuales que implican desde la diversidad de productores, los incentivos, los derechos de uso del bosque, hasta los nuevos conceptos de manejo forestal sostenible y la necesidad que como país pobre en vías de desarrollo tiene que usar el recurso natural, en especial el bosque y manejarlo para mantenerlo e incrementar la diversidad biológica.

Esta Ley, elaborada en cooperación con un Proyecto de la FAO, ya está lista para su aprobación, siendo sometida a los Organismos Centrales de la Administración del Estado, las Comisiones de Reforestación y entidades sociales, estando en estos momentos conciliadas las discrepancias fundamentales y el proyecto listo para ser aprobado por el Órgano Legislativo.

## F. Política como proceso

La Política Pública de decisiones son tomadas colegiadamente por la Asamblea Nacional del Poder Popular y/o por el Comité Ejecutivo del Consejo de Ministros, son ejecutadas con racionalidad y son tramitadas a nivel de la sociedad, mediante audiencias públicas y consultas a la población.

Por ejemplo, en lo concerniente a la actividad forestal fue convocada por el Parlamento una audiencia pública con alto nivel participativo y propaganda televisiva, radial y de la prensa plana sobre la legislación forestal, el Programa Forestal hasta el 2015 y las legislaciones de la nueva Ley Forestal, dejando un alto grado de satisfacción en el personal especializado y la población.

# 5. POTENCIALIDADES

## A. Situación actual

El Sector Forestal en la economía del país, actualmente aporta aproximadamente sólo el 0,8% del PIB y como promedio el 8,7% de las actividades agrícolas, caza y silvicultura, lo cual se debe al decrecimiento en la producción forestal en la década del 90, aunque comenzó desde 1995 un proceso de recuperación que admitirá en 1998 sobrepasar la producción récord del país.

En la actualidad se obtienen varios productos no madereros del bosque que pueden incrementarse considerablemente en el futuro.

A los bosques protectores actuales pertenecen el 70% de los bosques naturales y el 37,8% de las plantaciones.

En total la superficie forestal, hasta tanto se ejecute otra nueva categorización, corresponden a los bosques productores el 36% y a los productores y de conservación el 64%.

El potencial forestal, según el estudio realizado hasta el 2015, puede llegar al 27% del área total o sea a 3,08 millones de hectáreas y la conclusión del Programa Nacional Forestal determinará el potencial forestal de la Nación.

A partir del Programa elaborado hasta el 2015 existirán 700,0 miles de hectáreas de plantaciones de forma permanente con una utilización de 404,8 miles de hectáreas para actividades productivas y unas 355,5 miles de hectáreas de bosques naturales con un trabajo intenso de restauración, enriquecimiento y manejo sostenible.

Dentro del Programa se incrementará el uso de la industria actual con un programa de modernización de la misma con nuevas instalaciones, aumentando las capacidades hasta las 300,0 $Mm^3$, la instalación o adaptación de hasta 3 plantas de tableros con capacidad de 60,0 $Mm^3$ anuales a partir de plantaciones de eucaliptos. Se prevé el estudio de factibilidad para la instalación de una planta de celulosa de 50,0 mil toneladas.

Resinar 17000 hectáreas de pinos anuales para aumentar la producción a 15,0 mil toneladas.

El país cuenta con 634.0 miles de hectáreas de Áreas Protegidas para la conservación, el fomento y desarrollo de la fauna y la flora silvestres.

Se ha trabajado fuertemente en la agroforestería en más de 30,0 mil hectáreas efectivas y existe un constante trabajo en el silvopastoreo en todas las entidades ganaderas del país con aproximadamente 100 bancos de proteínas establecidas a partir de plantas forestales.

Se trabaja en todo el territorio por la introducción en la práctica productiva de los principales resultados obtenidos en las investigaciones forestales y las tecnologías de avanzada en este sector.

A través de las Comisiones de Reforestación Municipal se ha exigido el establecimiento de postes vivos en las cercas de ganadería y de cuartones con árboles forestales que garantizan las sombras en los potreros, (anualmente se siembra como promedio 20 millones de postes vivos, con especies de varios propósitos, o sea, madereros, alimentación y meliferas).

Existe un programa aplicado en la actividad apícola que se ejecuta en todo el territorio nacional y se chequea sistemáticamente, tanto por la Agricultura como por las Comisiones de Reforestación,

referido a la plantación y establecimiento de especies melíferas, que garanticen el néctar para la estabilidad de los apiarios y la producción de miel de abejas.

Se ha preparado el programa de indicaciones del Estado en 25 Programas Especiales para el fomento forestal, fundamentalmente de actividades protectoras que se ejecutan y chequean sistemáticamente.

# CONCLUSIONES Y RECOMENDACIONES

## Conclusiones

La actividad forestal en Cuba se encuentra bien definida en las estrategias a desarrollar por el Gobierno y el Sector, dependiendo en lo fundamental por las condiciones económicas existentes en la actualidad del desarrollo que se obtenga por la inversión y en este sector.

Existe realmente serias dificultades financieras para un proceso rápido y acelerado pero todo depende de lo que sea capaz de generar la Forestal.

Están identificados hasta el 2015, las necesidades y medidas a tomar para lograrlo, en primer lugar la ordenación forestal reiterada para la actualización del recurso forestal decidiendo por resolución ministerial dar esta función al Grupo Agroindustrial Forestal y se gestiona una ayuda financiera para esta actividad.

Se trabaja fuertemente en el fortalecimiento institucional del Sector Forestal y se ha dotado de medios de transporte al 50% de los municipios del país para el Servicio Estatal Forestal, al cual se le han traspasado todas las funciones de autorizaciones de cortas, guías, certificaciones y aplicaciones de los impuestos forestales.

## Recomendaciones

Es recomendable concluir y aprobar a mediados de este año la nueva Ley Forestal.

Trabajar aceleradamente las actividades complementarias de la Ley y las contravenciones.

Fortalecer el papel del Servicio Estatal Forestal en las acciones de consolidación del Sector Forestal.

Trabajar para consolidar las funciones y el crecimiento productivo del Grupo Agroindustrial Forestal de Cuba.

Fortalecer el papel del Instituto de Investigaciones Forestales (IIF) en la obtención e introducción en la práctica de los resultados de las investigaciones y las tecnologías de avanzada.

Terminar la definición de tierras, mediante documentación legal, que garantice el programa de desarrollo previsto.

Cumplir el cronograma de ejecución de los trabajos de Ordenación Forestal.

Agilizar las acciones que viabilicen la concreción de los convenios que se tramiten para el financiamiento y establecimiento de Empresas Mixtas en el desarrollo de entidades forestales mixtas.

Tomar medidas para en este año concluir el Programa Integral Forestal del País y someterlo a la aprobación de la Dirección del Gobierno.

Dar seguimiento al Plan hasta el 2015 de las entidades forestales.

# A REVIEW OF RECENT FORESTRY POLICIES IN DOMINICA

by Dr. Rory F. Fraser

## FOREWORD

This country policy review represents an output of the first phase of an analysis of forest policies in Latin America and the Caribbean which the Food and Agriculture Organization (FAO) is carrying out in collaboration with regional and international organizations, such as the Central American Council on Forest and Protected Areas (CCAB-AP), the United Nations Development Programme (UNDP), Union Internationale de Conservation Natural (UICN), Finnish International Development Agency (FINNIDA), World Resources Institute (WRI), Centre for International Forestry (CIFOR), and the European Union (EU) Project on Agriculture Frontier. It follows similar exercises in Europe, Africa, the Middle East, and Asia and the Pacific. In this documentation phase, FAO plans to draw on and update recent studies such as the Tropical Forest Action Programme, the Environmental Action Plan and the Country Environmental Profile. What is more important, FAO hopes to learn about the impact of forest policies from professionals, administrators, planners and people directly or indirectly affected by or affecting forests. The study is funded by the Commission of the European Communities in their effort to support the governments of the Caribbean Countries in defining, updating and modifying the national forestry policies, in order to increase the contribution of the forestry sector to national economic and social development through the sustainable utilization of their forest resources. Similar studies have been completed for: Antigua and Barbuda; Bahamas; Barbados; Belize; Grenada; Guyana; Haiti; Jamaica; Montserrat; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Trinidad and Tobago; Aruba, Bonaire, Curaçao, Saba, Saint Eustasius, Saint Martin; Anguilla; Cayman Islands; Turks and Caicos Islands; and the British Virgin Islands.

In an effort to ensure that all facets of forest policy were considered, the following key individuals in Dominica's forestry, natural resources, economic and planning sectors or agencies were interviewed: Michael Zamore (Forestry), Arlington James (Watershed Management), Adolphus Christian (Parks and Reserves), Dr. Colmore Christian (Tourism), Eluid Williams (Agriculture), Livingstone Cassell (Land Use), Rafael Francis (Physical Planning), Felix Gregoire (Public Sector), Atherton Martin and Henry Shillingford (Conservation Association), Mona George-Dill (Ecotourism and Research), and Patrick Delano (AID Bank). In addition, studies related to forestry policies conducted over the past five years--by regional and international organizations (Organization of the Eastern Caribbean States (OECS), Caribbean Conservation Association (CCA), Caribbean Development Bank (CDB), University of the West Indies (UWI), UNDP, FAO, etc.), periodicals, newspapers, national magazines, publications of political analysis, NGOs activities, emergency activities, special programmes of government agencies, the research of universities, reports by consultants, and information provided by news groups on the Internet -- were reviewed. These sources were augmented by visits and discussions with people living and working in important natural resources areas, such as Trafalgar Falls, Emerald Pool, Carib Territories, etc.

This report attempts to summarize complex information into a document suitable for analysis both at the country and regional level. The document has been prepared in adherence to guidelines, on report organization and content, established by FAO during a pre-consultancy workshop.

# 1. INTRODUCTION

> "Dominica is popularly referred to as The Nature Island of the Caribbean not only for her towering mountains, crystal-clear streams, tumbling water-falls and steaming soufrieres, but also for the richness and diversity of her plant and animal life. In fact, it is this unique mix of gifts from Nature that sets Dominica apart from the rest of the Eastern Caribbean islands in terms of its biological diversity and ecotourism potential." Arlington James (Discover Dominica The Tourist Island of the Caribbean, 1997)

The role of indigenous forests has been recognized for almost a century in Dominica. As a result, there has developed a body of legislation which cover most aspects of forestry (A. Christian, 1997). These laws, such as the Forestry and Wildlife Act (1975), provide protection and allow wise use, not only of flora but of fauna, soil and water. These laws also created and empowered the Forestry and Wildlife Division (F&WD), the implementing agency.

## Perceptions of Forestry in Dominica

Dominicans, at all levels of the society, have a very sophisticated appreciation for forestry. They live in one of the most densely forested islands of the region and have had traumatic experiences with natural disasters, such as hurricanes; torrential rains; earthquakes; volcanoes; manmade landslides and floods. These experiences have made Dominicans acutely aware of the importance of their forest cover to ecological, economic and social security. At the same time, Dominicans live in a predominantly agrarian economy and their government has initiated one of the most aggressive land privatization schemes in the region. This reality may explain why Dominicans display a very high level of interest in land and land-based matters. The awareness of, and interest in, nature has increased since hurricane David in 1979. After this devastating hurricane, the Government of the Commonwealth of Dominica (GOCD) with the assistance of regional and international agencies, committed resources to environmental education. This programme, led by F&WD, has increased the Dominican people's understanding of their natural environment, particularly their forests. Much of this understanding is projected in the Dominica the Nature Islands image which James (1997) talks about and is emblazoned on the national coat of arms in the motto -- Apres Bondie, c'est la Ter-- After God, the Earth. As Van de Velde (1986) suggests, this motto:

> " ..is the nation in its essence. A deeply religious and overwhelmingly agricultural society, the islanders look to God for their spiritual sustenance and, for their bodily sustenance, to the riches of the earth."

The term Forestry, as used in Dominica, connotes many of the elements, programmes and activities with which it is associated (Box 1). Meanings of the term vary, from individual to individual, agency to agency, and even within agencies. In spite of the differences, however, Dominicans seem to accept forestry as a complex subject. Perhaps, their history, geography, small population size and environmental education have made them aware of the need for interdisciplinary approaches to forestry problems. Alternatively, perceptions of forestry in Dominica may be a consequence of citizens' unfamiliarity with the F&WD's roles and responsibilities. Perhaps, these perceptions resulted from a willingness or requirement of the division to take on greater responsibilities. Most likely, these perceptions reflect both the formal and informal, overlapping and/or compensatory, functions performed by dedicated personnel in the division.

***Box 1. List of elements often associated with the term "Forestry"***

- forests and trees
- forest material for housing construction
- food and medicine from trees and forests
- way of life of communities living in or near forests
- trees and forests in support of agriculture
- trees and forest in support of soil and water conservation
- trees and forest in support of, or related to, tourism, recreation and other activities
- trees and forest in support of biodiversity and ecosystem maintenance
- fuelwood
- watershed and watershed management
- wildlife
- national parks and protected areas
- ecotourism
- forestry, wood industry (pulp and paper, sawmill, etc.)
- governmental agencies responsible for forestry related activities
- regional and international organizations and conventions
- private sector activities considered as falling under, or related to, forestry
- NGOs' activities considered as falling under, or related to, forestry
- trees and forests related to global environment issues as carbon storage
- social values considered related to trees and forests
- legal definition of the scope of trees, forests and forestry
- community and interested groups concerns and perception of forestry resources

**List of government's areas of activities and intervention considered as part of forestry**

- lands considered as forests, woodland or any other category related to trees, forests and forestry according to the Government land use zoning and planning activities
- wildlife protection and ecosystems protection programmes and activities
- national parks and protected areas activities
- governmental norms and regulations related to the use of trees, forests and land
- government's projects and programmes considered as falling under forestry
- governmental agencies and areas of responsibilities and activities considered as related or having to do with trees, forests and/or forestry
- activities financed by the Government's budget or financing programmes
- any governmental activity for financing, controlling or promoting development of areas considered forestry
- main programmes, laws, policies considered as linkages to forestry or affected by forestry.

The elements most often associated with forestry in Dominica are evident in the tasks performed by the F&WD. These tasks have been identified as protection and management of the nation's forests and wildlife, watershed management, environmental education and management of national parks (NEAP, 1994).

## A Socio-economic Profile of Dominica

Dominica's main socio-economic indicators are presented in this section.

Dominica is rated as one of the best countries in the 20 countries of the Central American and Caribbean region. In 1997, Dominica was ranked 41st in the world, based on UNDP's Human Development Index (HDI). Barbados (25th), the Bahamas (28th), Antigua & Barbuda (29th), Costa Rica (33rd) and Trinidad & Tobago (40th) were the only countries in the region ranked higher. Dominica's HDI rating, places it amongst the top 25 percent of countries in the world, in terms of health, education and income. This high ranking can be attributed to high literacy rates (94 percent in

1994), high life-expectancy at birth (72 years in 1994) and modest per capita income (current Eastern Caribbean (EC)$6,679 in 1996, US$1'EC$2.7). Dominica also happens to rate as one of the freest countries in the region. In 1996, USAID gave Dominica their highest ratings for political rights and civil liberties. This distinction was only accorded to two other countries in the region--Barbados and Belize. Only Antigua & Barbuda, with 7 percent, has a lower unemployment rate than Dominica's 10 percent.

Dominica is one of the larger islands in the Eastern Caribbean and it has a relatively small population (71,519 in the 1991 census, approximately 74,000 now). The population is 89.1 percent African , 2.4 percent other ethnic, mixed or Amerindian descents and 70 percent Christian and Roman Catholic. The infant mortality and crude birth and death rates were 22.5,21.6 and 7.2 respectively, in 1994.

The warm balmy climate, of 24° to 26° Celsius and 7.4 hours average sunshine per day with an annual rainfall exceeding 100 inches, is excellent for both tourists and agriculturists. In 1995, 267 cruise ships with 134,921 passengers, called on Dominica. At the same time, there were 103,652 arrivals, 68,838 of whom were visitors. Over the last decade, tourism has grown fivefold--from 45,817 in 1985.

Bananas and other agricultural products account for about 20 percent of Dominica's GDP and more than 90 percent of domestic exports. Food and agricultural production grew by 22.4 percent between 1984 and 1994, which corresponds to a 25 percent growth per capita in food production. Dominica had the third highest food consumption rating in the region according to USAID, 1992 estimates. It was also the country in the region, rated to have the largest improvement (23 percent) per capita calorific intake between 1982 and 1992.

Infrastructure in Dominica has improved significantly in the last decade. Potable water reservoirs have doubled and total consumption has quadrupled. The most significant beneficiaries were domestic consumers whose consumption has increased 20-fold. During the same period, electricity consumption increased 260 percent, telephones increased 464 percent, and the number of licensed vehicles increased 250 percent. Most Dominicans live in their own homes (72 percent), the rest pay rent (19.2 percent) or live rent free (7.0 percent). The number of hospital beds has increased by 25 percent, the number of high schools has doubled and the government now provides assistance to 15 pre-schools.

Despite these statistics, Dominica is still perceived to be a poor country. Three possible explanations for these perceptions are natural disasters, the structure of the economy, and World Bank statistics. Severe damage wrought by hurricanes over the past two decades has had a major impact on Dominica's infrastructure--homes and other buildings, communication and transportation structures, natural areas and crop trees. In response to these, the international community has provided assistance. USAID, for example, has increased their contribution of food-aid to the nation. At the same time, a heavy reliance on agriculture-based exports, especially bananas, exposed Dominica's vulnerability to its trading partners. A 344 percent increase in banana production between 1984 and 1994, for example, only led to a 69 percent increase in export value. Alternatively, this perception may be based on national and World Bank statistics.

Dominica's GDP at factor cost in current prices was EC$541.25 million in 1996, three times its value in 1983. Growth rates were over 10 percent in the 1980's, but declined to half that in the 1990's. The numbers are less spectacular when constant (1990) prices are used. Total growth was less than 60 percent and growth rates were frequently below 3 percent.

The GNP per capita in 1995 was US$2,990, the seventh highest in the Caribbean. However, the World Bank (1997) estimates a 33 percent poverty rate in Dominica, the fourth highest rate after the larger, less densely populated, continental nations--Guyana (43 percent), Suriname (39 percent) and Belize (35 percent). These perceptions of Dominica's poverty may be reinforced by concerns about Dominica's financial solvency. The nation's annual visible trade deficit had grown from EC$45.7 million in 1994 to EC$123.6 million in 1994. At the same time, central government accounts were in arrears at the end of eight of the twelve accounting periods. Only, Guyana in 1995 (-30) had a lower current account balance to GDP ratio than Dominica (-23) which had the sixth highest total debt stock to GDP ratio in the region.

# 2. FORESTRY POLICIES IN DOMINICA

## Defining Forest Policy in Dominica

There is no single document which provides a comprehensive forestry policy in Dominica. Concepts of forestry and forestry policy have evolved over the past century. Current laws, management practices and administrative guidelines have been heavily influenced by external agents responding to the perceived needs of an island buffeted by economic malaise and natural disasters. As a result, there are a number of laws, programmes and proposals that collectively provide direction for forestry and forestry related activities in the nation. In this study, therefore, the term "policy" takes its meaning from the usage of interested groups and agents as seen in Box 2.

***Box 2: Usage of the Term Policy***

*Field of government activity.* Sometimes when technicians and government officers refer to forestry policy they usually mean an area of action or intervention of the government. The term is normally used in this sense in the context of broad statements about the government actions.

*Policy as expression of general purpose or desired state of affairs.* Specific documents entitled "national forestry policy" in which the most noble principles for using trees and forests are presented. These documents are also called "forestry policy statements".

*Policy as specific proposal.* The technical studies of mid level or senior technicians, the proposals of NGOs or other organizations are sometimes presented as "forestry policy" by those interested groups.

*Policy as decisions of government.* Many decisions taken by the government responding to crisis or moments of choice are frequently dubbed as policies. On other occasions, the issuing of a law or norm is also considered as policy.

*Policy as final authorization or legal responsibility.* Laws regarding forestry and the institutional responsibilities are often reported as policies.

*Policy as a programme.* A programme involves at least a package of legislation, organization and resources. It is one of the main means by which governments pursue their broader purposes or ends, and many times are referred to as policies.

*Policy as government delivery.* The expenditure of governments or the resources delivered for a particular objective are very frequently identified as policies.

*Policy as government achievement.* The impacts of governments' programmes and activities are reported as policy. That is, the outcome from governments efforts in reforestation, forest industry expansion, etc.

*Policy as a theory or model.* Researchers and academicians sometimes talk about theories or models for explaining forestry phenomena as policy, for example the thesis that "the adoption of economic incentives is necessary to arrest deforestation".

In the preparation of this study all uses of the term were considered. Many of the current forestry policies have been in place for sometime, other policies are more recent in origin. There are also current and evolving issues which may result in new or revised policies. In this section, current forest policies and prior analyses are identified, while recent policies are discussed. Current and emerging issues are discussed later.

## Evolution of Forest Policy in Dominica

Current governmental forestry policies in Dominica were initiated over a century ago. The Botanical Gardens Ordinance of 1898 and the Botanical Gardens Rules of 1932 and 1934 are standard legislation covering botanical gardens, the objective of which was the conservation of important flora and fauna. This legislation, developed by the British for their colonies, is replicated in other former British West Indian islands.

In the post-World War II era, there was a spate of legislation developed by the British to deal with high unemployment in the island and declines in traditional agricultural markets. The Agricultural Small Tenancies Ordinance of 1953 provided for protection of trees and the conservation of soil on government lands leased for small scale farming. This law supported colonial experiments with agricultural diversification and economic development. The intended beneficiaries were the poor, unemployed and landless. Subsequently, The Forest Ordinance of 1959--the original forestry legislation--was developed. Under this law, forest reserves were designated and regulations were established for extraction of forest produce from government lands. This law also provided authority for the designation of private lands as protected forests for soil and water conservation, as well as other public purposes. With this law in place, The Crown Lands Ordinance of 1960, and The Crown Lands Regulations of 1960 and 1961 allowed for the transferral of lands from the public to the private sector. Under this policy, all government land, not in reserve status, was available for private acquisition. However, every sale of land had conditions attached--allowing government to add regulations and exercise control over land use. These laws are still enforceable today.

In the pre-independence period, there was another spate of legislative development. In preparation for independence in 1978, the British assisted Dominica in reviewing and revising existing laws while developing new laws. Some of these laws dealt with land-use and sectoral planning responsibilities which included forest or forestry related components. Laws, such as The Development and Planning Corporation Act of 1972, created an umbrella-type corporation responsible for all physical planning activities in Dominica. In the same vein, The Town and Country Planning Act of 1975 requires the development of a national structure plan which includes regional, sector-specific, and local plans for land-use and land development. More specifically, under this law, tree preservation orders could be issued to protect trees and woodlands, even on private property.

Laws directly relating to forestry such as The Forest Rules of 1972, a modification of the Forest Ordinance, specifies the actions prohibited in forest reserves and provides greater detail on the issuing of licences and permits for harvesting forest produce. The Central Water Authority Regulations of 1973 established the protection of trees in publicly owned water catchment areas. The Stewart Hall Water Catchment Rules of 1975, a modification of the Forest Ordinance, allowed a privately owned water catchment to come under government control by designating it a protected forest. The Forestry and Wildlife Act of 1976 was the first major revision of the Forest Ordinance. This act establishes national responsibility for the protection of wild fauna, and the management of forests and forests reserves for wildlife protection.

The Division of Forestry and Wildlife, established under the same act, was simultaneously charged with overseeing all forestry and wildlife matters. Other laws such as The Natural Parks and Protected Areas Act of 1975, authorizes the Minister of Agriculture to set aside state lands as protected areas for the preservation of natural beauty, for the provision of recreational opportunity and for the commemoration of historic values. This act also allowed for the creation of a National Parks Advisory Council and provided for the development of park management plans. These responsibilities are now undertaken by the Division of Forestry. The Division, however, was not responsible for implementing the Forest Industries Development Corporation Act of 1977. This act authorized the creation of a corporation for timber production, that is, felling and milling timber from Crown lands. These laws, and their relevance to forestry, are described in an OECS-NRMP (1986) project document.

## Recent Forest Policy Initiatives

Recent, post-independence national forestry policies have had their genesis in another spate of activities. Major hurricanes--David in 1979 and Allen in 1980--caused major economic, social and environmental damage to Dominica. In response, several donor countries and agencies provided significant assistance, both technical and physical. At the same time, international agencies and powerful nations were becoming increasingly concerned about environmental issues in tropical developing countries, such as Dominica. As a result of this outpouring of interest, there were calls for administrative and legal reform in the natural resources/environmental sector. The first of these activities was an institutional analysis of natural resources management by the OECS (1989). The second was an environmental profile by the Caribbean Conservation Association (1992). The third was a national forest action plan prepared with the assistance of FAO (1993). Finally, technical assistance by the World Bank, helped the GOCD to develop a National Environmental Action Plan in 1994.

At present, public administration of forests and forestry related activities on both private and public lands are the sole responsibility of the Division of Forest and Wildlife, a unit within the Ministry of Agriculture and Environment. This programme is wholly funded by GOCD and derives its overall direction from the Medium Term Economic Strategy Paper (MTESP), an integrated programme prepared by the Economic Development Unit, Office of the Prime Minister. This policy document was compiled from eight sectoral reviews which include: Health; Community Development and Social Affairs; Education; Sports; Tourism; Agriculture; Trade and Industry; and Services prepared between 1989 and 1993. Permanent Secretaries, Chief Technical Officers, World Bank Staff and external consultants assisted in the compilation.

## The Current Political Agenda for Forestry in Dominica

The MTESP appears to have synthesized most of the elements of forestry and matters of policy raised in the late 1980's and early 1990's and integrated them into the national agenda. This document, therefore, even though it is not as detailed as the draft policy for the development of forestry, wildlife and national parks prepared by McHenry and Ganes (1988), does represent the most coherent and current policy on forestry in Dominica. Of equal, if not greater importance, this document has been prepared by GOCD senior government official, sanctioned by the political directorate and reviewed by external donor agencies. This suggests that the guidelines established in this plan, when accepted, should have determined resource allocation, political commitment and administrative action. The broad objectives of GOCD as stated in the MTESP are:

(i) broaden the base for economic growth, particularly in tourism, agro-processing, export services and non-traditional agriculture
(ii) strengthen public finances to increase savings which are critically needed as counterpart financing for investments
(iii) ensure that the standard of living does not deteriorate but improves through human resource development
(iv) increase productivity and domestic savings through better economic management
(v) protect the natural environment for the welfare of Dominica's citizens and in support of the ecotourism thrust.

In addition, the findings of the National Environmental Action Plan were folded into the MTESP. Three concerns addressed by NEAP, and given priority in the MTESP, were: solid waste disposal, land use, including deforestation, and degradation of the coastal zone. As a result, the action plan for environmental issues in the MTESP included a specific programme for Forested and Protected Terrestrial Areas. These 11 action steps were:

(i) Introduce improved agro-forestry techniques
(ii) Establish user fees for national parks and selected tourist sights

(iii) Secure funding and implement a Tropical Forestry Action Plan (TFAP)
(iv) Implementation of a ten-year plan for Morne Trois Pitons National Park
(v) Prepare a management plan for protection and use of the Indian River
(vi) Review pricing policies for timber/fuelwood
(vii) Review pricing possibilities for water from protected catchment areas and set implementation schedule(s)
(viii) Establish a national programme for preservation of natural and cultural attractions
(ix) Increase community participation in forestry/wildlife/parks activities
(x) Prepare and implement ten-year plans for forest reserves
(xi) Implement management plans for Morne Diablotin and Cabrits National Parks

At the same time, the action plan required activities which directly or indirectly involved the Division of Forestry and Wildlife. Under the public finance plans, there was a "no increase in public sector employment above current level" policy. Therefore, ministries had to consider reorganization, revision of job descriptions and attrition in manpower plans. Under this plan, the stock of domestic debt would be reduced by selling public fixed assets, including land, to repay Government's obligations. Under the environmental plan, conservation areas in high priority watersheds have to be designated, an integrated land information system has to be created and a national land use plan has to be prepared and adopted. Finally, an Inter-Agency Coordinating Committee has to be established, technical capacity within institutions has to be improved, additional public outreach and environmental education has to be developed and NGOs used to raise environmental awareness.

These national plans give overall scope and direction to the work of the Division of Forestry and Wildlife and dictate the resources available to them for implementation. At the same time, the division still has to meet those elements of its mandate under existing laws, that are not specifically identified in the MTESP. That is, they are still under obligation to satisfy most of the objectives they had pursued prior to MTESP (OECS, 1989, CCA, 1991, NEAP, 1994). These objectives were identified as:

1. The setting up or demarcation of forest reserves and national parks
2. The proper utilization of forest and natural resources
3. Research into silvicultural and utilization practices
4. Extension work in conservation and silviculture
5. Training in wise use of natural resources
6. The provision of recreational opportunities
7. Creation of employment and provision of revenue
8. Protection of forest reserves, wildlife, water catchments and other natural, historical, archaeological and marine resources.

## Policy Implementation

Some of the actions contained in the MTESP have been implemented and the other tasks of the F&WD have been accomplished to the level of resource availability. In a review of Dominica's performance, Hill (ECLAC/CDCC, 1997), Coordinator of the Sustainable Development Council, reports that:

(i) protected watershed areas have been established and an administration is in place, however, a watershed management institution or legislation is not yet in place
(ii) international conventions on Biological Diversity and CITES have been ratified and there are supporting legislation, plans and implemented strategies for the conservation and sustainable use of these resources
(iii) no land-use plan has been developed since 1984, however, a Geographic Information System is being developed to facilitate planning
(iv) there are laws for parks and protected area systems, however, the government has not employed economic instruments or rationalized land-use/resources management as strategies to encourage sustainable and integrated use
(v) tourism is now a major contributor to the economy and measures are in place to ensure that its development and environmental management are mutually supportive

These activities have been supported by a number of externally funded programmes (SIDS, 1997) such as:

(i) ecotourism sites have been developed with the assistance of European Development Fund (EDF) and CDB
(ii) a community-based project (ENCORE) was developed with the assistance of CANARI
(iii) a cross-sectoral, coordinating Sustainable Development Council was established with the aid of UNDP
(iv) physical planning and environmental protection was supported by a UNDP fund
(v) tourism diversification was funded by France
(vi) a training programme for wildlife managers was funded by the Wildlife Preservation Trust International
(vii) the USA provided funds to purchase in-holdings in Morne Trois Pitons National Park.

Recently, the Division of Forestry and Wildlife has introduced user fees at tourism sites, such as Trafalgar Falls and Emerald Pool. These fees are expected to generate EC$1.2 million per annum (The Independent, 1997).

While these activities were taking place, there was a change in political leadership as a result of elections in 1995. This change has affected Governmental continuity. At the same time, promised external funding for the TFAP has not materialized and no additional resources were allocated by the GOCD for the MTESP. Finally, the challenges of responding to the demands of their traditional mandate provided very little opportunity for developing new programmes.

Given the magnitude of their responsibility and the limited resources with which to implement programmes, the staff of the division displayed a high degree of motivation and effort. Without doubt, Dominica is fortunate to have dedicated and competent professionals. However, there were obvious signs that the division is, at present, incapable of meeting all the demands placed on them. The Dominica Conservation Association, for example, was very concerned that the division was unable to respond to matters they considered of critical importance. They identified a number of problem areas which needed to be addressed urgently. These will be presented in the next section.

## 3. EMERGING AND CURRENT ISSUES AND PROBLEMS

There are a number of problems and issues about forestry policy in Dominica: the meaning of these terms, as used in this report, is defined in Box 3. Some of these concerns have existed for some time, others are current and then there are those that are emerging. Reports, other publications and the opinions of interested stakeholders, were used to identify the more relevant/important issues, problems, topics and subjects under discussion.

***Box 3. A definition of the terms Issue and Problems***

An issue is considered, for the purposes of this study, as a fundamental enduring conflict among stakeholders regarding objectives, goals, customs, plans, activities, resource access, resource tenure or resource use rights. Issues are not likely to be resolved completely in favour of any clear cut position in that conflict.

Problems are defined as the malfunctioning of something according to specific standards, experience or expectations. An engine is not delivering the expected horse power output, trees are not growing at the desirable rate, an insect plague outbreaks on nurseries, etc. Problems can also be defined as what needs to be done for going from present stage "to a desired stage".

Problems are considered to have a solution in a definitive way by the application of knowledge. Issues do not have solutions, alternatives and options have to be found for temporary resolution. Solving problems is the responsibility of experts, finding options and alternatives for issues is the field of the policy analyst, the decision maker and the politician.

Dominica faces many of the problems of small independent island states. Bass and Dalal-Clayton (1995) contend that in small islands:

- economies are narrowly based and highly exposed to external economic and political influences--Dominica is heavily dependent on bananas and tourists
- ecosystems are intimately connected--forests protect soils, water and wildlife in Dominica
- environments are vulnerable to external environmental influences-hurricanes, soil erosion, and flooding are part of Dominica's recent history
- damaged environments erode indigenous economic and social potential--there have been significant economic and social costs resulting from natural and man-made disasters
- suffer many constraints in tackling unsustainable development-human, capital and financial resources have never been adequate.

McElroy, DeAlbuquerque and Towle (1991) identify similar, yet very different problems, such as:

- routine lack of data, over burdened staff, skill deficiencies and crisis management style
- management characterized by particularism--face to face personalized and kinship ties reduce objective decision making, inhibit confronting serious issues and reinforce the status-quo
- geographical remoteness tends to support the slack pace of administration
- strong partisan politics and restricted job opportunities lead to caution and high turnover.

Finally, Eyzaguirre (1996) contends that in these economies, technology generation and adaptation is impossible to undertake or manage transaction costs are high and sustaining national institutions is difficult. These problems are best summarized by Pantin (1995) who suggests that:

> "There are understandable and unavoidable tensions everywhere between the demands for employment, improved wages and living conditions today, and the environmental sustainability of the economic policies implemented to achieve these demands. This tension is particularly acute in many small island economies in the world, and certainly in those of the Caribbean where there is widespread unemployment and poverty."

He also contends that even though people in the Caribbean are sensitive to environmental issues, they have not yet found the solution to three problems which are, economic survival, the consequences of the socio-economic activities on the environment, and anticipating, avoiding or mitigating the impact of the environment on economic survival.

Dominicans interviewed for this review expressed similar sentiments. They displayed a high degree of environmental awareness, an understanding of some of the unique challenges they face as a small independent island state, and a deep commitment to finding solutions to their problems. They were also unanimous in expressing disappointment in the non-implementation of the TFAP plan. Most had invested a significant amount of time and aspirations into assisting that and earlier projects. They felt they had helped to develop a national plan for forestry that was both comprehensive and attainable. They were also somewhat impatient with another round of studies. Many were of the opinion that most of the problems, issues and solution options were already developed. *The major problem expressed by all of the interviewees was the lack of implementation.*

Other problems, issues and subjects were also discussed. Similar concerns were grouped into three categories: institutional, administrative and physical. Institutional problems and issues are the perceived inability to find solutions or compromise within the responsible institution. Administrative problems and issues are the perceived situations in which the solution or compromise has been inadequately or improperly implemented or not implemented at all. Finally, there are ways of managing and outcomes of action or inaction which have physical impact on forests and forestry solutions or compromises. These categories of concerns are presented in the next three sections. Most of the people interviewed for this study emphasized that they have expressed these opinions for other consultants and researchers (CCA, 1991, NEAP, 1995, etc). Others only participated on the

understanding that there were no direct references to specific individuals. The views of the latter were respected in preparing this section of the report.

## Institutional Problems and Issues

The F&WD is the institution charged with implementing most forest policies in Dominica. As such, they are required to accomplish many challenging and complex tasks. Both within and outside the institution, the major institutional problem is inadequate resources--number of trained personnel, funds, facilities, equipment and transportation. These have not been allocated at the levels necessary to accomplish the identified tasks. Under the existing forestry policy, the TFAP has been identified as the major programme for the forestry sector. Strengthening and upgrading the F&WD was the number one priority. This was never initiated and very little has been done to accomplish this objective. The inadequacy of resources stymies the F&WD ability to rationalize and sustain any programme.

The responsibility of obtaining the resources for F&WD is perceived to be the responsibility of central government. Within the division and the public sector there is a general impression that, while forestry receives much verbal support from politicians and senior civil servants, there is very little support for the forestry agenda. Some expressed the view that politicians and, in turn, their senior advisers are distracted from the long-term benefits of the forestry programme, by their commitment to more politically expedient short-term concerns outside of the sector. There are those who feel that foreign agents or agencies exercise an inordinate amount of influence on public decision making. Especially, those who offer the potential for foreign loans or expertise. Therefore, there is the perception that decisions and actions are driven by external forces over which they have little control. Over the past 10 years, however, there was some sense that they were in the centre of political attention and even though they were not the driving force, at least forestry stood to gain from international interest in Dominica's forest and environment. The hiatus since the TFAP, NEAP and other related activities has caused them to question the commitment of politicians and other change agents.

On the other hand, there are those in the private sector who feel that not enough is being done, either by the central government or F&WD. They do concede the small number of trained professionals are competent and over-extended. However, they are of the view that not enough is being done to involve citizens in the planning and decision making process. They suggest this may be the reason that there is little sustained political support for the division and its work. They point to the location of the head office in the capital and not in the forest as an example of both the spatial and metaphoric distance of the F&WD from their constituents. They also suggest that a preoccupation with conventional forestry--timber & tourism--has limited the number of stakeholders to whom they appeal. Some would like to see Dominicans take greater responsibility for their resources and become less dependent on external agencies for their proper management and sustainability.

## Administrative Issues and Problems

Problems in the administration of programmes are no less in Dominica than they are in other places. Institutional limitations imposed by the limited availability of resources is an obvious impediment to effective administration in Dominica. One of the immediate consequences of inadequate resources is weakened monitoring and enforcement capability. This problem manifests itself in two ways. First, regulations are poorly enforced. Second, poor enforcement of some regulations undermine the imposition of other regulations. This presents the F&WD with an unenviable dilemma--how to appear to be actively enforcing all regulations while only capable of dealing with a few. An excellent example of this is squatters' encroachment on forest reserve. Some people are of the view that the F&WD has done a poor job of protecting the reserve. On the other hand, the division feels that they have done their best to make people aware that they are vigilant and ready to act. However, even they admit that squatting is a problem, especially in the Northern Reserve.

There are a number of other factors contributing to the problems of enforcement. Penalties are not prohibitive, legal requirements to successfully prosecute a case are demanding, and forest officers are not trained to try cases in court. In fact, many of the financial penalties are absurdly low--even then they are not paid-- and the courts have to be relied on to enforce sanctions. When the courts do act,

the preparation of evidence and development of a legal brief are usually beyond the training of officers. In other cases F&WD, having determined there was significant damage to a piece of land, requested the lands department to seize the property and pay fair-market compensation to the owner. Unfortunately, the government has had a poor record of timely payment. In reality, compensations have taken so long to process, interest charges have exceeded compensation value. This has made officers hesitant to pursue legal remedies. An alternative approach has been to use a combination of legal threats, cajoling and community influences to encourage offenders to correct or discontinue activities.

The lack of coordinated action among land-use agencies, F&WD limited involvement in the allocation of state-owned lands, and the absence of a national land-use plan are other examples of problems in administrating forestry policy in Dominica. There are agencies such as the Physical Planning unit, the Development and Planning Corporation, and the Sustainable Development Council that have been established to plan and coordinate land-use and other associated activities. However, there is a perception both within and without F&WD that these agencies are understaffed and lack the required human resources to accomplish their very challenging mandates. At the same time, both F&WD and Lands and Surveys also lack the human resources to devote to land-use planning and there is a general lack of modern labour saving equipment such as computers, geographical information and global positioning systems.

There is a perceived lack of initiative in the development of new forestry-based opportunities The bay rum industry was pointed to as an example of an indigenous product with international appeal. Some felt that there are other indigenous products that could or should be studied, developed and marketed abroad. They feel that more could be done by F&WD or other government agencies to help promote interest and research into the non-timber products. This opinion, however, does not reflect the attempts of James and Gallion (1996) and Zamore (1988) to document some of these resources.

The under-involvement of the populace in the policy process was obvious in the comments made by NGOs and private citizens, including the Caribs. There was a general consensus among private individuals that the policy process in Dominica is closed, available only to those in the government or those politically connected. They did not feel that there was opportunity for public input into the decision-making process. The Colihaut protest and the demand by tourism site operators for government to fix the newly introduced ticket system (The Independent, 1997), were given as two examples of the type of problems which arise when stakeholders concerns are not included and when plans are developed for public places.

## Physical Problems and Issues

Institutional and administrative problems and issues are seen to impact the forests in a number of ways: a slow but definite degradation of the forests, visible signs of damage to soils and watersheds, stresses in protected populations, encroachment of intrusive economic activities into reserves, and tardy enforcement of people's rights. Many of these problems and issues are perceived to have their roots in lax enforcement of laws: a consequence of inadequate resources. They are also perceived to be deliberate contravention of laws and regulations in the furtherance of other political and social agendas.

Natural forest areas in Dominica are declining as unreserved areas are privatized and converted. As a counter to this activity, the government in its wisdom set aside reserves to ensure forests remain part of Dominica's landscape. Some argue that not enough natural forest has been set aside to guarantee the sustainability of the forests and all of its benefits. These individuals feel more lands should be reserved. Many of them are also concerned that even though areas are reserved, lax protection--against squatters, illegal extractors, etc.--undermine the integrity of these forests. They see problems of forest fragmentation, increased risk of fire, selected impacts on preferred species, etc. They are also concerned that some large scale activities (discussed later) have, and will continue to have, major long-term negative impact on these reserves. Others argue that there are competing demands for these resources and a poor country like Dominica has to be responsive to social, political and market forces. The absence of coordinated resource management and a land-use plan are perceived by all parties as the source of many of the problems/issues.

Rock slides, flooding, sedimentation and bare slopes are pointed out as evidence that Dominica's soils are being depleted and watersheds degraded. Some blame many of these problems on land distribution--to uninformed or improperly prepared owners who use the land inappropriately and have little guidance. Others blame the increases on the surge in banana demand, the subsequent conversion of lands to banana plantations and decreased regulation. All concede that this is a problem and one which requires both public and private participation and commitment. The challenge is to meet the social, political and economic benefits of this production without significant impact on soils, forests and most important, watersheds.

The financial returns from the forests pale in comparison with the revenues generated from hydro-power, the sale of spring-water in reserve, or the potential returns from mining copper under the forests-floor. The dilemma here is the economic expediency of allowing these activities in forest reserves which some already consider too small. There are those who think that allowing these activities on reserved areas raises questions about the nation's commitment to these areas. They suggest that it establishes precedents which undermine the status of present or any future reserves. Their greatest fear, however, is that this fickleness may be a consequence of undervaluing the contribution of these reserves to Dominica's economy and environment. This fear is compounded by the potential these mega-projects have for corrupting decision makers and the decision making process. On the other hand, many feel that Dominica would be foolhardy to not take advantage of these economic opportunities, think that forest values have been properly accounted for, and have confidence that these activities will not have a corrupting effect in Dominica.

Indigenous lands have not been demarcated and the Caribs feel very vulnerable. They expressed concerns that without clear demarcation other Dominicans have intruded onto their property and derived economic benefits. They can and have complained, but do not feel that their concerns are shared by others. There was obviously some tension among villagers about the benefits of communal landownership versus the benefits of private landownership. However that is resolved, the question is who is responsible for demarcating the land. Some Caribs would like to do it for themselves if they could afford to, others see it as the responsibility of the government. It appears, however, that the government is willing to help but lack the resources.

A revision of the wildlife laws have been submitted to the cabinet. This revision will strengthen existing laws. However, the absence of wildlife inventory, the six-month long hunting seasons, and absence of bag limits cause some people to really question the long-term viability of game species. Again, lack of resources explains the paucity of information, lax regulation and inadequate protection. Some people feel these problems should be given greater priority both within F&WD and within the government. Others feel that they are aware of the problem and are trying to address them the best way they can.

## 4. PROCESSES AND MECHANISMS OF POLICY FORMATION

Public policies are formed in a series of phases, each with their own rationale. The policy process involves officers and agencies and mechanisms by which policies are formalized and legitimized. In many countries, the process begins with issue search and agenda setting and is completed when decisions and actions are taken to terminate, change or maintain the policy. There are usually several processes of policy formation depending on the resources, scope and significance of the policies etc. These processes have been mapped out in Dominica in a study conducted by the OAS and OECS (1989) and are still relatively unchanged in spite of the change of government in 1995.

In the OAS-OECS study, the consultants identified actors and their responsibilities. In the report (summarized in Chapter VII) they documented natural resources laws and the responsible agencies--function, organization, budgets, capacity, capability, decision making and interrelationship. The specific objective of the report was to provide a description of the governmental agencies and organizations involved in the management and administration of the natural resources in the region. Therefore, they did not indicate how issues and problems were identified and included in the government agenda; discuss the tools--identification of options and selection procedure--used for policy analysis; talk about how information was obtained for the analysis; report forecasting success; identify how objectives are determined and articulated; specify the mechanisms for implementation of policy; provide examples of policy tools; or determine the a priori conditions for policy evaluation.

Other studies have alluded to aspects of the policy process not covered by the OAS-OECS study. Specifically, the CCA (1991) discussed forestry policy in their review of the institutional framework for environmental management. A DEPS (1996) report discusses the inherent lack of analytical and evaluative capability in Dominica. Hill (1997) identified limited baseline information and research as a major constraint to developing policies that result in sustained outcomes. OECS-NMRU/GTZ (1992) project identified both available and unavailable information used in natural resources decision making. They also identified some of the difficulties in obtaining information. Finally, the MTESP ((1994) provides some idea of the process leading to government policies.

Discussion of the policy process with Dominicans support the thesis that public policy is an externally driven, top-down process. Most of the programmes, plans and regulations in the forestry sector are the result of externally funded, consultant driven activities. No doubt, local politicians and senior government officials may have assisted in the process. There is also no doubt that these activities are very important to the economic and environmental well-being of Dominica. But, from the reports and discussion there is the distinct impression that many of these activities are externally driven. Some suggest that this may explain why programmes are not sustained. They contend that while these initiatives are good, they subscribe to others' agenda, are the outcome of others' efforts, and for these two reasons, do not gain full acceptance. Case in point, the TFAP, an excellent idea with great potential to improve forestry in Dominica.

The TFAP process began in Dominica with the arrival of an FAO consultant who convinced the agency and the Dominican government that this programme could be funded, that it was a priority for the funding sources, and that Dominica, lacking the relevant skills, would benefit from the inputs of regional consultants. Well, the agency and the government put everything into the process, expended political good-will, created expectations within their sector and the nation, and pursued the programme at the expense of other initiatives or perceived needs. The outcome, this programme which is still the cornerstone of national forestry policy (according to the MTESP) has stalled for over four years. As a measure of its growing irrelevance, this consultant could not obtain a copy of the document in Dominica because no one had a readily available copy.

The plethora of international and regional forestry and related environmental initiatives in Dominica, has led to the development of a forestry policy which is of doubtful relevance today. Some suggest this has occurred because external agents are driven to show outcomes and to use documents as evidence of action. Others contend that regional and international agencies have or had overlapping interests which leads to redundancies or duplication of effort. Then there are those who think that agencies were unaware of or unmindful of the efforts of other agencies. Whatever the problems, the decision of these agencies to coordinate their initiatives could improve the policy process in Dominica. As James (1997) indicated, the lessons UNDP has taken away from their review of previous studies are:

- policies need to be country driven
- based on comprehensive multi-sectoral analyses
- reflect policy reform across the public services
- build on, and draw from, local capacity outside of government
- show tangible field results which benefit local communities.

The lessons have translated into guiding principles: national sovereignty, country leadership, systematic policy and institutional reforms, and awareness of forestry issues at all levels of the society. These lessons and principles are relevant to Dominica, because not only are the policy processes externally driven, but the culture of systematic policy formation is in its infancy. A fact alluded to in some of the earlier studies.

Continued external influence is a reality in Dominica and is likely to continue into the future. However, recent initiatives suggest that Dominicans both within and outside of the public sector, will be able to influence the process more directly. The regionally coordinated Sustainable Development of Small Island States (SIDS) has provided a framework for evaluating the implementation of the 14 highest sustainable development priorities for countries such as Dominica. Hill's report (1997) indicates that the policy process is one of the elements identified for continued scrutiny in Dominica.

# 5. DOMINICA'S FORESTRY POTENTIAL

## Forests of Dominica

Dominica has the most extensive and diverse tree cover in the Eastern Caribbean. According to a country report submitted to the International Conference and Programme for Plant Genetic Resources (ICPPGR, 1995), Dominica's natural forests, woodland and bush cover 52,000 ha, or over two-thirds, of the island's surface. The land area is covered by 31 percent matured rain forests, 12 percent secondary rain forest, 9 percent semi-evergreen forest, 8 percent scrub woodland, 5 percent montane forest, 1 percent montane thicket and a smattering 1 percent of elfin woodland, littoral woodland and swamp. This vegetation consists of more than 1,000 species of flowering plants and about 60 woody plants which belong to 155 families, 672 genera and 1,226 species of vascular plants and trees. The forest strata, defined as trees with a diameter equal to or exceeding 30 cm diameter breast height in a 1987 FAO forest inventory, is composed of 22 percent gommier (*Dacryodes excelsa*), 14 percent carapite (*Amanoa caribaea*), 14 percent bois cote (*Tapura latifolia*), 12 percent chataignier (*Sloanea spp.*), 10 percent mahot cochon (*Streculia caribaea*), 7 percent bois diable (*Licania ternatensis*), 4 percent bois riviere (*Chimarris aymosa*), 3 percent mauricif (*Byrsonima martinicensis*) and 11 percent others species (CCA, 1991).

Dominica's forests have many subsistence, environmental and economic uses. James, (1997) best describes the subsistence value of the forest in this way:

> "A variety of minor forest products, now referred to as "non-wood forest products" are currently utilized by Dominicans for a variety of purposes including handicraft production, basketry, medicinal plants, small industries (e.g., bay-oil industry), spices and food. Some of these products include bamboo, leaves and barks for producing dyes, vines such as Pomme de lyann used in basketry, screw pine, Roseau reed and the Lauouman reed used for making the famous Carib craft items."

Recognition of the importance of forests for sustaining the environmental health of the island, is evident in that over one-third of the forests, or 20 percent of the land area, in Dominica has been demarcated as either forest reserves or national parks. The gross, government-owned, forest area base was estimated at 9,224 ha of declared forest reserve, the 8,800 ha Northern Forest Reserve and the 410 ha Central Forest Reserve. There are two national parks, Morne Trois Pitons National Park (6,872 ha) and the Cabrits National Park (600 ha). In addition, there are 5,369 ha of uncommitted State land which the Dominica Forest and Wildlife Division (F&WD) suggests should be retained as forest reserves (Zamore, 1992). These reserves may be increased shortly by the addition of Morne Diablotin National Park (approximately 4,000 ha) as promulgated in recent Government of Commonwealth of Dominica (GOCD) plans (MTESP, 1994). If these actions are taken, GOCD will control 50 percent of the forests or 33 percent of the total land area. However, rainforests are not the only areas protected or identified for protection.

Coastal woodlands and swamps, wildlife habitats, wild flora and fauna water catchment areas are also protected. Recent efforts are protecting coastal woodlands and swamps, such as Cabrits Swamp and Indian River Flats, which have been so decimated that only isolated patches remain.

Over 50 species of resident birds, including two endemic parrots--the imperial ("Sisserou"), Amazonia imperalis and the red-necked ("Jacquot"), Amazonia arausiaca--both of which are endangered, find their home in the forests of Dominica. Under Project Sisserou, a 200 acre parrot reserve was established. While specific protected areas have not been established for other species they are protected by game laws and management plans for parks and reserves.

There are 12 species of native mammals on the island of Dominica, all are bats. The agouti is believed to have been introduced by the Amerindians while the other five wild mammals, opossum, two types of rats, house mouse and pig, were introduced by Europeans. There are other species found on the island--one turtle, 10 lizard, five serpents, two frogs, 10 terrestrial crabs and five fresh water shrimp.

The opossum, agouti, pig, iguana (*Iguana delicatissima*), crapaud (*Leptodactylus fallax*), three crabs--the freshwater crab ("Ciriques"), Guinotia dentata, the white crab ("Corbo"), Cardisomia guanhumi, the black crab, Gecarcinus ruicola, and three shrimp--(*Atya innocous, A. scabra* and *Macrobrachium carcinus*) species are hunted or collected as delicacies. A closed game season keeps hunting in check.

Forests are also protected in water catchment areas such as Stewart Hall. However, almost all of Dominica's water catchment areas are located entirely on privately-owned property. As a result, laws have been promulgated to protect trees in these areas.

The forests of Dominica has economic value, some have been estimated others have not. The value of exploitable timber and fuelwood in Dominica was estimated at $24.4 million (in Eastern Caribbean currency) in a national resources accounting exercise (OECS-NRMU/GTZ, 1992). The authors of this report stressed that these were not the only values of the forests. They said:

> "While individual owners may be able to claim the timber on their property, other forestry attributes are available to all, including its scenic beauty, wildlife, and capacity to generate, store and clean water. As a result, the financial value of such land - equal to the private gains appropriated by the owner - is much smaller than its economic value, i.e. the benefits society (including the owner) receives from its use."

There are financial returns from other forest products. The sale of local woodcraft and non-wood forest products, as well as user fees and other revenues in ecotourism, depends on Dominica's ability to market nature tourism, as Zamore (1992) points out, " ...the Nature Island. An image which depends largely on the visual impact of large expanses of natural forest or undisturbed vegetation." While the values of these products have been recognized (Kingsbury, 1992, ICPPGR, 1995, Fritsch, 1997) they have not been computed. In the words of A. Christian (1997):

> "Whether it is acknowledged or not, whether it is even recognized or not, the fact is quite evident that Dominica is now becoming increasingly dependent upon tourism. And for tourism to be viable and lucrative in Dominica, it has to be preceded by, and extended to continuous protection and maintenance of the environment."

## The Role of the Forestry Sector

Forestry's contribution to GDP--which covers bamboo, wood, firewood and charcoal-- was EC$3.48 million at factor cost in current prices in 1996. This value was down from a high of EC$4.20 million in 1984 and above the low of EC$2.20 million in 1986. Forestry's percentage contribution to GDP declined from 2.22 percent in 1983 to 0.64 percent in 1996. Forestry is such a small sector in Dominica that this is the only information documented in GOCD's Statistical Digest, No. 8, 1995 or National Accounts Statistics of GOCD, 1983-1996. There are no other references to forestry outputs--- not even under manufacturing, agricultural production, or GOCD's economic services. The only other associated activity mentioned in the official statistics, is the imports of wood and lumber which grew from EC$2.334 million in 1983 to EC$7.756 million in 1996. Imports of these commodities doubled in 1989, fell off in 1990, but has hovered between EC$6 to EC$8 million ever since.

# 6. INSTITUTIONAL ARRANGEMENTS

Dominica's institutional arrangements related to forestry have been analysed and reported by Lausche (1986), McHenry and Gane (1998), Bourne (1989), Chalmers (1990), CCA (1991), NEAP (1994), MTESP (1994), ICPPGR (1995), and Hill (1997). Three types of organizations are discussed--public, private and international.

## Public Institutions

Dominica became a nation on the 3rd November 1978, at which time the Commonwealth of Dominica Constitution Order went into effect. Under this order, a parliamentary democracy was established. That is, governance of the nation is the responsibility of a non-executive President, a unicameral House of Assembly and a Cabinet. The President is elected for a five-year term by the House of Assembly on joint appointment by the Prime Minister, Executive Head of the government, and the Leader of the Opposition. The House of Assembly consists of 31 members: 21 parliamentarians or constitute representatives elected by universal suffrage; an ex-officio Attorney General who may also be elected; and nine senators nominated by the Prime Minister (five senators) and the Leader of the Opposition (four senators). The Cabinet consists of the Prime Minister and Ministers of GOCD who are appointed by the President on the advice of the elected member of the House who has the support of the majority of elected members. Executive power is exercised by the Cabinet, legislative power by the House of Assembly, and legal power is exercised in a manner consistent with English Common Law. The maximum interim between elections is five years. In the most recent election, in 1995, there was a switch in political power--the new governing party had been in the opposition for the previous 11 years. Executive authority is vested in an 11-member Cabinet headed by a Prime Minister. Each member of the Cabinet is a Minister of GOCD and has executive responsibility for a Ministry. Day-to-day administration of government is the responsibility of the Pubic Service which consists of employees of ministries and other public servants employed by the government.

Forestry is administered by F&WD, a unit within the Ministry of Agriculture and the Environment. In order to accomplish their mandate, the F&WD is organized into seven sections (see organizational chart, Box 4) and is headed by a Director of Forestry and Wildlife--who reports to the Permanent Secretary, the highest ranking public servant in the MATT.

The daily chores of F&WD include the granting of licences for hunting, fishing, removal of timber and other produce from Crown Lands or Forest Reserves, and permits for the scientific collection of wildlife. All appointed officers in F&WD have authority to issue licences. In the performance of their administrative and regulatory activities, F&WD personnel have to interact with two other agencies: Tourist Board, and Lands and Surveys. The division cooperates with the Tourist Board in the development, regulation and management of forest, river, waterfall and wildlife tourist sites. They also cooperate with Lands and Surveys in the regulation of activities on private lands, especially water catchment areas.

## Private Institutions

There are two major non-governmental organizations (NGOs) involved in environmental issues and thereby forestry issues. The leading NGO is the Dominica Conservation Association (DCA), an off-shoot of the Dominica Conservation Society formed in the 1960's. This group has been the most vocal and persistent critic of GOCD forestry programme. As reported earlier, their main criticisms of the F&WD are their lack of initiative and under involvement of Dominica's people in the planning, administration and regulation of their forests. The other significant NGO is the Springfield Research Centre located on a 190-acre reserve donated to Clemson University, USA, for research activities. This centre is struggling financially and has not been as active in local initiatives.

## International and Regional Agencies

There have been significant contributions to Dominica's forestry initiatives in the past 10 years and this has lead to the evolution of a number of reserves, protected areas, training, and developed tourist sites. In recent times, there have been other programmes. Three of the current programmes were listed in the SIDS home page and are tabulated below. The home page listing is http://www.wow.net/comm. /SIDSDATA/proj1.

| | |
|---|---|
| **Project:** | **Ecotourism Site Development** |
| Funding Source(s): | |
| Funded by: | EU |
| Budget and Duration: | |
| Budget: | EDF EC$500,000<br>Local EC$58,00 |
| Executing Agencies: | Ministry of Trade , Industry and Tourism |
| SIDS Focus: | tourism resources management of wastes |
| Description: | Upgrading of infrastructure; equipment and training; Emerald Pool and Trafalgar Falls, tourism information, community participation, future operating costs to be covered by user fees. |
| Time Frame: | n/a |
| Status: | pipeline (on appraisal) |
| Additional Info: | n/a |
| Sources: | The Courier, No. 154, November-December, 1995 |

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|---|---|
| **Project Title:** | **Physical Planning and Environmental Protection** |
| Funding Source(s): | UNDP |
| Budget: | US$354,000 |
| Executing Agencies: | Physical Planning Division UNCHS |
| SIDS Focus: | land resources science and technology |
| Description: | GIS. |
| Time Frame: | 1992-1996 |
| Status: | on-going? |
| Additional Info: | n/a |
| Source: | UNCHS. Caribbean Human Settlements Programme. Barbados. 1995 |
| Project Title: | Capacity 21 Project - CDB/UNDP Cooperation - CARICAD Programme for Strengthening Capacity for Sustainable Development in English-speaking Caribbean |
| Funding Source(s): | 1) UNDP/Capacity 21<br>2) Gov't./CARICAD |
| Budget: | - UNDP US$750,000<br>- Gov't./CARICAD US$100,000<br>Total US$850,000 |
| Executing Agencies: | CDB<br>(CARICAD - Implementing Agency) |
| SIDS Focus: | capacity building |
| Description: | The objective of this project is to strengthen the national and regional institutional capacity to pursue medium- and long-term sustainable development activities in an integrated manner, thus ensuring greater cooperation among all the concerned actors (governmental and non governmental organizations, the private sector) and the achievement of more cost-effective and innovative approaches. In-depth objectives are as follows: development of consultative processes in selected islands that ensure the revision and implementation of the results of the SIDS conference and its implications at the national and regional level, as well as the revision of NEAPS, EIAs and other studies; ii) establishment of Sustainable Development Councils in each of the islands, ensuring the involvement of the governmental, NGOs and private sector; iii) collaboration of CARICAD and some leading regional institutions - CDB, UWICED, CCA, several regional NGOs and Barbados External Communications (BET) in the development of a Sustainable Development Network (SDN) among the islands in order to electronically share sustainable resource information, human resources, and valuable experiences so as to avoid duplication of efforts and optimize the rational use of human and institutional capabilities, and the available data on research and projects for the development of incrementally efficient activities; iv) to selectively train the Sustainable Development Councils at the regional level in updated processes and current issues; and v) to facilitate Interagency coordination among |

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| | international donors and other support agencies in the region to maximize benefits from their interventions. |
| Time Frame: | 1994-1997 |
| Status: | on-going |
| Additional Info: | Sources: 1) UNDP Project Document - "Strengthening Capacity for Sustainable Development in English-speaking Caribbean"<br>2) Caribbean Centre for Development Administration CARICAD/UNDP/ CDB Capacity 21 Project - Status Report<br>3) Caribbean Development Bank - Status of Technical Assistance Projects Under Implementation. As of June 30, 1996. |

# 7. POLICY STUDIES

Forestry policy studies have been part of other studies. In this section, information on research and other activities--carried out for the purpose of understanding policy formation--is presented. Some of the areas addressed by these studies might have been: how policies are made (process study); what policy assumptions and proposals were examined (policy content analysis); what analytical methods were used in identifying and selecting options (meta-analysis), what impacts were identified and how cost effective were implemented policies (policy evaluation). Studies carried out during the last 10 years were examined and relevant details are tabulated below.

| | |
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| **Name of Study:** | **Description of National Legislation Related to Natural Resources Management** |
| Purpose and Main Objective: | To improve the capacity of the OECS and its member countries to plan the use of resources and land. |
| Sponsor and Implementing Agency: | |
| Funded by: | OAS-GTZ |
| Publication by: | OECS-NRMP |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | May to November 1986 |
| Research Methodology: | Interview government officials and Document search for legislation |
| Type and Sources of Information: | Personal comments and legal documents. |
| Results of Study: | Compilation of legislation, preliminary analysis and observations, and recommendations for follow-up. |
| Scope of Study: | National report |
| Follow-up: | Institutional analysis in the area of natural resource management: the case of Dominica. |

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| **Name of Study:** | **Institutional analysis in the area of natural resource management: the case of Dominica.** |
| Purpose and Main Objective: | An assessment of the institutions in Dominica concerned with the management of the natural resources of land, forests, water, tourist amenities such as beaches, parks and wildlife, and waste management. |
| Sponsor and Implementing Agency: | |
| Funded by: | OAS / OECS-NRMP / GTZ |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | n/a, completed November 1989 |
| Research Methodology: | Interviews with 30 senior government officials and document search. |
| Type and Sources of Information: | Organizational charts, budgets, application forms and licences, manpower surveys, planning documents, and matrices of institutional responsibility from government departments. |

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| Results of Study: | This assessment details the organization and functions of institutions, the interrelationships between them, the legislation governing them, and their adequacy and resource capability of these institutions for managing Dominica's natural resources. |
| Scope of Study: | National |
| Follow-up: | National Resource Accounting for Dominica, 1992 |

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| **Name of Study:** | **Report to the Government of Dominica on Forestry, Wildlife and National Parks Policy and Legislation** |
| Purpose and Main Objective: | To assist Dominica in the upgrading of national policies and legislation relating to forestry, wildlife and national parks. |
| Sponsor and Implementing Agency: | |
| Funded by: | FAO |
| Implementation: | FAO Consultants |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | May 1987 to February 1988 |
| Research Methodology: | Review of existing policy and legislation relating to forestry, wildlife and national parks. |
| Type and Sources of Information: | Interview government officials, review literature and tour island. |
| Results of Study: | "A draft policy for the development of forestry, wildlife and national parks taking into account the six essential features on which the policy depends - water, soil, heritage, output, participation and public awareness. It identifies the obstacles to progress as the inadequate basis for resource management, that is, the need to secure land for resource management through purchase or lease, the misuse of the land in the watersheds, the under utilization of the land and resulting low productivity and the economic capacity of the island. It proposes a strategic programme for overcoming the obstacles outlined, including the need for legislation to implement this. It also proposes the detailed legislation which should be enacted" (IRF library summary). |
| Scope of Study: | National |
| Follow-up: | FAO TFAP proposal preparation, 1990 |

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| **Name of Study:** | **Dominica: country environmental profile** |
| Purpose and Main Objective: | To document Dominica's environment and environmental problems, and recommend public policies which would lessen and even prevent negative impacts on the resource base. |
| Sponsor and Implementing Agency: | |
| Funded by: | United States Agency for International Development. |
| Publication by: | Caribbean Conservation Association |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | February, 1990 to April, 1991 |
| Research Methodology: | Interview public officials and private individuals and groups. Reviews of national, local, regional and international documents, papers, laws, reports, academic publications.. |
| Type and Sources of Information: | The most exhaustive data on all aspects of Dominica's economy, environment and natural resources. |
| Results of Study: | "An environmental profile of Dominica which includes a detailed review of the extent and economic importance of the islands natural resources and the changes in the quality and productivity of those resources. It reviews the institutions, legislative policies, and programmes which impact |

environmental planning, economic development and natural resource management and it identifies the major issues, conflicts or problems in natural resource management." (IRF library notes)

Scope of Study: National

Follow-up: Environmental agenda for the 1990's : A synthesis of the Eastern Caribbean country environmental profile series.

**Name of Study:** **Environmental agenda for the 1990's : A synthesis of the Eastern Caribbean country environmental profile series**

Purpose and Main Objective: To provide easy access to individual country profile findings and recommendations and therefore to increase their visibility to a wider audience of Caribbean leaders--both political and environmental..

Sponsor and Implementing Agency:

Funded by: United States Agency for International Development

Publication by: Caribbean Conservation Association

Budget and Duration:

Budget: n/a

Duration: June, 1991 to September, 1991

Research Methodology: Summary of findings in six national environmental profiles.

Type and Sources of Information: Nine islands' environmental profiles.

Results of Study: "An overview summary of the key environmental issues and problems identified in the six country environment profiles for Antigua and Barbuda, Dominica, Grenada ,St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines.. ." (IRF library summary)

Scope of Study: Regional summary with some national level findings.

Follow-up: n/a

**Name of Study:** **FAO Tropical Forestry Action Plan: For Nine Caricom Countries: Report on Preparatory Mission**

Purpose and Main Objective: Determine the number, size and composition of TFAP missions required and prepare detailed draft

Sponsor and Implementing Agency:

Funded by: FAO

Budget and Duration:

Budget: n/a

Duration: October, 1989 to March, 1990

Research Methodology: A series of meetings with public officials, diplomats and regional and international agencies.

Type and Sources of Information: Anecdotal information and CDB Social and Economic Indicators for 1988.

Results of Study: List of contacts, summary of important issues/ideas/concepts discussed, and summary statistics.

Scope of Study Regional--Caricom except Guyana, Jamaica and Belize

Follow-up: TFAP missions.

**Name of Study:** **National Resources Accounting for Dominica**

Purpose and Main Objective: Describe natural resources in terms of physical attributes and To improve the capacity of the OECS and its member countries to plan the use of resources and land when possible, economic value.

Sponsor and Implementing Agency: Funded by: OECS-NRMU/GTZ

Budget and Duration:

Budget: n/a

Duration: n/a. completed October 1992

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| Research Methodology: | Review of literature, economic estimates of value. |
| Type and Sources of Information: | Reports and studies, national statistics |
| Results of Study: | Social Accounting Matrix, Estimates of Man-made Capital, Physical Description and Valuation of Urban Land and Natural Resources including Timber Stock. |
| Scope of Study: | National |
| Follow-up: | n/a |

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| **Name of Study:** | **Environment Management Programme** |
| Purpose and Main Objective: | Proposal to establish a technical assistance programme to strengthen the environmental management capacity in Dominica. |
| Sponsor and Implementing Agency : | |
| Funded by: | GOCD and EU |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | March 1994-1997 |
| Research Methodology: | n/a |
| Type and Sources of Information: | Country Environmental Profile, Tourism Sector Plan, ENCORE programme, NEAP |
| Results of Study: | n/a |
| Scope of Study: | National |
| Follow-up: | National Environmental Impact Assessment Action Plan for Dominica |

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| **Name of Study:** | **Dominica: National Environmental Action Plan** |
| Purpose and Main Objective: | Set the agenda for environmental management in Dominica for three years. |
| Sponsor and Implementing Agency: | |
| Funded by: | GOCD with support the World Bank |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | n/a, Started in 1992 and completed in April, 1994 |
| Research Methodology: | First Draft based on field work and reports. Draft revised during four meetings of National Coordinating committee. |
| Type and Sources of Information: | Country Environmental Profile, National Forestry Action Plan and other studies |
| Results of Study: | Identification of major environmental problems in Dominica and formulation of appropriate policies to address these problems. |
| Scope of Study: | National |
| Follow-up: | National Environmental Impact Assessment Action Plan for Dominica |

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| **Name of Study:** | **Dominica: Medium-Term Economic Strategy Paper 1994-1996** |
| Purpose and Main Objective: | To identify policies which will stabilize the economy and promote growth in an increasingly uncertain external environment and which will enable a smooth transition for the economy. |
| Sponsor and Implementing Agency: | |
| Funded by: | GOCD with support the World Bank |
| Budget and Duration: | |
| Budget: | na |
| Duration: | na, August 1992 to April, 1994 |
| Research Methodology: | First Draft based on sector studies. Draft revised and NEAP incorporated. |

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| Type and Sources of Information: | Eight sector Papers prepared between 1989 and 1993, and NEAP |
| Results of Study: | Statement of Government objectives for next three years and the strategy for accomplishing these objective. TFAP identified as the official programme for forestry. |
| Scope of Study: | National |
| Follow-up: | n/a |

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| **Name of Study:** | **International Conference and Programme for Plant Genetic Resources (ICPPGR)** |
| Purpose and Main Objective: | Assessment of Dominica's plant genetic resources for submission an international conference in 1996. |
| Sponsor and Implementing Agency: | |
| Funded by: | GOCD |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | n/a, completed June 1995 |
| Research Methodology: | Literature review and compilation of national statistics |
| Type and Sources of Information: | Reports and studies, laws and personal observations |
| Results of Study: | Description of indigenous plant genetic resources, national conservation activities, in-country use of plant genetic resources, international collaboration, national goals, policies, programmes and legislation and national needs and opportunities and proposals for global plan of action. |
| Scope of Study: | National |
| Follow-up: | Presentation at international conference |

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| **Name of Study:** | **Specific conditions relevant to the management of captive wildlife.** |
| Purpose and Main Objective: | To establish the standard physical conditions for keeping specific species in captivity |
| Sponsor and Implementing Agency: | |
| Funded by: | F&WD |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | n/a, 1996 |
| Research Methodology: | Personal experience and anecdotal reports from colleagues in other national institution. |
| Type and Sources of Information: | as above |
| Results of Study: | Regulation of cage sizes for agouti, opossum and doves |
| Scope of Study: | National |
| Follow-up: | Proposed Amendments to the Forestry and Wildlife Act |

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| **Name of Study:** | **Proposed Amendments to the Forestry and Wildlife Act** |
| Purpose and Main Objective: | To revise existing laws to cover loopholes and other regulatory issues not in current Act. |
| Sponsor and Implementing Agency: | Funded by: F&WD |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | n/a, 1996 |
| Research Methodology: | n/a |
| Type and Sources of Information: | Personal regulatory and administrative experience |
| Results of Study: | Specific amendments recommended which would expand the interpretation of wildlife, allow for non-consumptive use of wildlife, revise fee structure and prohibit dumping in rivers and streams. |
| Scope of Study: | National |

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| Follow-up: | Submitted for legislative consideration. |
| **Name of Study:** | **National Environmental Impact Assessment Action Plan for Dominica** |
| Purpose and Main Objective: | To facilitate the formal introduction of EIAs into the planning decision making process in Dominica. |
| Sponsor and Implementing Agency: | |
| Funded by: | OECS-NRMU |
| Budget and Duration: | |
| Budget: | n a |
| Duration: | completed April, 1996 |
| Research Methodology: | Review of national physical planning and requirements of EIAs |
| Type and Sources of Information: | Planning Acts, Environmental Profile, EIA handbooks and Terms of reference of Sustainable Development Council. |
| Results of Study: | Review of the Physical Planning Department and the process they employ. Summary of Issues/Constraints and Recommendations. |
| Scope of Study: | National |
| Follow-up: | Framework for Action: National Implementation of SIDS-POA |
| **Name of Study:** | **Framework for Action: National Implementation of SIDS-POA** |
| Purpose and Main Objective: | An assessment of the implementation of the Small Island Developing States Plan of Action (SIDS-POA) |
| Sponsor and Implementing Agency: | |
| Funded by: | ECLAC/CDCC with assistance of Dominica's Sustainable Development Council |
| Budget and Duration: | |
| Budget: | n/a |
| Duration: | completed November 1997 |
| Research Methodology: | Questionnaires were mailed to 23 CDCC member countries and information provided by country Coordinators. |
| Type and Sources of Information: | National programmes |
| Results of Study: | Review of 14 programme areas and implementation activities. Including the five most successful initiatives, a rating of the 14 programmes relative to national and regional/international levels of implementation, a ranking of cross sectoral issues, identification of constraints to implementation, recommended actions to overcome constraints and major challenges, priorities and elements of strategy for future implementation of the SIDS-POA in the next five-years. |
| Scope of Study: | National |
| Follow-up: | Inform the Caribbean Ministerial Meeting on Implementation of POA, November 10-14, 1997 |

# 8. CONCLUSIONS AND RECOMMENDATIONS

Forest covers much of Dominica's landscape and this is obviously, something which Dominicans take some degree of pride in. The island is advertized internationally as the "Nature Isle" which is not inconsistent with their motto Apres Bondie, c'est la Ter. Natural and man-made disasters, education programmes and an intimate setting have made Dominican acutely aware of the importance of trees. In many ways, Dominicans display a very sophisticated understanding of forestry. In spite of these very positive attributes, the forestry sector is not very prominent in the Dominican society.

Forestry is a very small feature in national statistics and for this reason the sector is not perceived to have much direct economic benefit to the Dominican society. Lack of economic prominence has translated into a relatively low level of political or bureaucratic support for the sector. In turn, a vacuum in national political and bureaucratic leadership existed. This vacuum was filled by a cadre of foreign consultants and a few highly informed and very knowledgeable local professionals, public servants and politicians.

The programmes or policies developed by this cadre made the case that forestry provided the underpinnings of other important sectors of the economy. They articulated the view that the forest was an important source of water, raw material and natural protection, which were important in the production of electricity, water, agricultural and manufacturing inputs. They were able to successfully link the wealth of the forest to the economic health of the nation. However, these programmes needed financial support for implementation.

Financial support for forestry in Dominica has come from two major sources: domestic and external. Forestry is a line item in the national budget and this support has remained relatively unchanged in the last two decades. Evidence that the level of national commitment has remained relatively consistent during this period. External support has been provided, either as loans or grants, by regional or global organizations. The levels of support have varied, from year-to-year and from agency-to-agency, but they have all been relatively significant compared to national budget contributions. Evidence that Dominica's forestry policies have attracted significant interest from regional and global communities.

Implementation of the forestry agenda in Dominica has been diligent to the degree of financial support availability. That is, routine tasks and assignments are accomplished when domestic funds are available. Additional tasks and projects are accomplished when external funds or consultants are available. In some instances, implementation has led to overlap and/or redundant effort. The end result of this policy development is a national forestry programme contingent on regional and global support for accomplishing anything beyond routine tasks and assignments. In this scenario, Dominica's forestry programme awaits contributions from external agencies to implement TFAP.

What is wrong with this scenario? Perhaps, nothing is wrong. Dominicans may like the idea that their region and the world is willing to help them to manage their forests. In this way, all parties would derive some benefit-- Dominicans the economic benefits of management, others the benefit of sustainable management of one of the few relatively intact small island tropical rainforests.

On the other hand, what if funds are not available for Dominica to implement TFAP? What are the alternatives? Should Dominica discard the programme? All of it? Some of it? Should an alternative be developed? What was learnt from the TFAP process that indicated it would not succeed? The answer to these and other questions are beyond the scope of this study. Better yet, it should be answered by Dominicans, if they have not done so already. What follows is an attempt to provide some perspective to these questions.

Forestry policy, as an idea, has support in Dominica, however, the specifics of existing policy are lost on the citizens. Many are aware and critically supportive of the F&WD, but most do not know and are relatively unconcerned about TFAP, the cornerstone of the national forestry policy. The F&WD validates a national need to manage the forest responsibly. Criticism of the division reflects citizens impatience with the way in which they manage. Comments were constructive and aimed at helping the division perform their tasks better. TFAP, on the other hand, is seen as a construct of others. Citizens do not know what it is and had no part in creating it. They do not know how useful it is to them, nor are they aware of any particular benefits they may derive from it. All they seem to know is that this is another of those foreign projects that bring in consultants who employ people for a fraction of their fees. However, that the projects create jobs is seen as good, whatever the outcome.

Lack of popular support for specific forestry policies, TFAP aside, may be a consequence of the national perception that the marginal benefits of investments in the forestry sector are much lower than in other sectors. That is, popular support and in turn political support may favour competing sectors, such as agriculture, which are perceived to have higher marginal benefits. Political theory suggests that the relative strength of popular support dictates the allocation of scarce public resources. A possible explanation for the relatively small allocations to forestry.

Two factors, public participation and popular support, may explain why forestry policy has been slow in evolving, sporadic in its implementation and stagnant in the absence of external support. The creation of policies by a few well intentioned and highly informed individuals has not translated into long-term enduring programmes in Dominica. A possible explanation for this phenomenon is the absence of national polls, local polls, comments from focus groups, minutes of key local informants or village meetings, or any other evidence that reflect local people's opinions on: the role of forests and its relative importance to them.

Perhaps this phenomenon is a reflection of the lack of public participation in the development of options, standards, policy tools, financing, monitoring, implementing and evaluating forestry plans and programmes. Perhaps a slower more informed process which helped people to become informed participants could have popularized forestry concepts, shaped popular opinion and galvanized political support. Perhaps participatory programmes may have succeeded in keeping political focus on accomplishing the objectives of policy, rather than the financing of programmes. There is much room for conjecture at this point. However, the direction charted by UNDP (James, 1997) suggests that some external agencies see greater need for participatory programmes.

Other external agencies may better assist Dominica by involving the local public in ways suggested by UNDP. A starting point may be to help Dominica's political directorate and senior public administration poll public opinion on forestry. Another step may be to help public administrators understand how public participation has been facilitated in other countries. Third, external agencies may be able to assist in providing public information on forestry. Fourth, external agencies may be able to assist government agencies and NGOs to facilitate public participatory meeting. Fifth, external agencies can help to develop self-sustaining, long-term publicly endorsed programmes. Finally, external agencies can provide resources to accomplish regional and international objectives which are beyond Dominica's present financial capability.

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# ACRONYMS FREQUENTLY USED IN DOMINICA

| | |
|---|---|
| AIDS | Agricultural, Industrial, and Development Bank |
| CANARI | Caribbean Natural Resources Institute (formerly ECNAMP) |
| CARDI | Caribbean Agricultural Research and Development Institute |
| CARICOM | Caribbean Community |
| CA | Caribbean Conservation Association |
| CDB | Caribbean Development Bank |
| CEP | Country Environmental Profile |
| CFRC | Commonwealth Fund for Technical Cooperation |
| CIDA | Canadian International Development Agency |
| CITES | Convention on International Trade of Endangered Species of Wild Flora and Fauna |
| DCA | Dominica Conservation Association |
| DOMLEC | Dominica Electric Company |
| DOWASCO | Dominica Water and Sewerage Company |
| DTL | Dominica Timbers Limited |
| ECLAC | Economic Commission for Latin America and the Caribbean (United Nations) |
| EGNAMP | Eastern Caribbean Natural Area Management Programme (renamed 1989 as Caribbean Natural Resources Institute, CANARI) |
| EDU | Economic Development Unit |
| EEC | European Economic Community |
| EU | European Union |
| EIA | Environmental Impact Assessment |
| EIS | Environmental Impact Statement |
| FAO | Food and Agriculture Organization of the United Nations |
| F&WD | Forestry and Wildlife Division |
| GDP | Gross Domestic Product |
| GOCO | Government of the Commonwealth of Dominica |
| GTZ | German Agency for Technical Cooperation (Deutsches Gessellschaft fur Technische Zusammenarbeit) |
| IDA | International Development Association (World Bank) |
| IFAD | International Fund for Agricultural Development |
| IICA | Inter-American Institute for Cooperation on Agriculture |
| ILO | International Labour Organization |
| IRF | Island Resources Foundation |
| IUCN | International Union for the Conservation of Nature and Natural Resources |
| LAC | Latin America and the Caribbean |
| MOA | Ministry of Agriculture |
| NET | North-eastern Timber Cooperative Limited |
| NDO | National Development Corporation |
| NGO | Non-Government Organization |
| OAS | Organization of American States |
| ODA | Overseas Development Administration (UK) |
| OECS | Organization of Eastern Caribbean States |
| OECS-NRMP | OECS-Natural Resources Management Project |
| PPD | Physical Planning Division |
| REMS | Regional Environmental Management Specialist (USAID) |
| SPAT | Small Projects Assistance Team |
| UK | United Kingdom |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| US | United States |
| USAID | U.S. Agency for International Development |
| UWI | University of the West Indies |
| WWF | World Wildlife Fund |
| YES | Years of Environment and Shelter |

# RECURSOS FORESTALES EN LA REPÚBLICA DOMINICANA

**by C. Casanova**

## 1. INTRODUCCIÓN

### 1.1 El Estudio

La Organización de las Naciones Unidas para la Agricultura y la Alimentación, FAO, conjuntamente con la Comisión de la Comunidad Europea, ha decidido llevar a cabo un estudio para apoyar a los gobiernos de los países del Caribe, en la definición, actualización y modificación de las políticas forestales nacionales, con el interés de aumentar la contribución del Sector Forestal a la economía nacional, a través de un uso sostenible de sus recursos forestales.

El estudio está siendo coordinado por la Oficina de Planificación de Políticas Forestales de la FAO, quienes han establecido los términos de referencia generales para el estudio regional y que consideró la contratación de un consultor local, para llevar a cabo la revisión y el informe de cada país.

La información básica del estudio en cada país, será aportada por cada consultor participante. El trabajo contiene una descripción del sector forestal del país, así como la descripción del proceso para la formulación de su Política Forestal, y del marco institucional que lo soporta. Este análisis se concentra en la situación actual y en las diversas percepciones en que los diferentes actores que interactúan en el sector: el gobierno, los organismos no gubernamentales y el sector privado, lo visualizan.

El trabajo incluye además, una descripción sobre los principales tópicos - problemas y conflictos que constituyen la agenda actual, en lo concerniente a los asuntos forestales.

Otro componente del estudio, es la identificación de la Política que se aplica en el Sector Forestal, así como de las Políticas emergentes. En este componente, se trata de distinguir el concepto de Política Forestal de lo que podrían ser intenciones, enunciados, planes, y programas en ejecución, por parte de los gobiernos o de otros sectores, así como separar la política de la legislación que la sustenta.

El estudio incluirá una exposición sobre las potencialidades del sector forestal, y de los estudios, programas, proyectos y actividades más relevantes, realizados en los últimos diez años y en ejecución, para un mejor uso y entendimiento de este sector.

Para concluir, se presentan las consideraciones del consultor sobre las oportunidades para mejorar la capacidad del país en la formulación de políticas tendentes a resolver los problemas identificados y para la resolución de los conflictos originados en el uso de los recursos forestales.

### 1.2 Perfil Físico de la República Dominicana

La República Dominicana ocupa la parte este de la Isla de Santo Domingo. La isla de Santo Domingo o Hispaniola, es una de las Antillas Mayores, enclavada estratégicamente en un punto preferencial en las rutas del tráfico marítimo, lo que constituye una ventaja en cuanto a su aposicionamiento para el comercio internacional.

El País ocupa las dos tercera parte de la isla de Santo Domingo, que comparte con la República de Haiti. Está ubicado entre las latitudes 17 grados 36 minutos 40 segundos norte y 19 grados

30 minutos 40 segundos sur y en los 60 grados 21 minutos y 74 grados 30 minutos al oeste del meridiano de Greenwich, con una extensión de 48,442 $Km^2$, incluyendo las islas adyacentes.

El clima de la República Dominicana es subtropical, modificado por los vientos alisios del nordeste y la topografía del país varia de la zona costera a las alturas montañosas de más de 3,000 msnm. Las temperaturas medias oscilan entre los 15 a los 34 grados centígrados. El régimen de lluvias es muy complejo y diferenciado en regiones. En la región norte y este se reciben entre 1,200 a 2,750 mm anuales. En la región sur y en el noroeste, que es mayormente seco, se registran entre 450 y 1000 mm anuales. Las épocas de lluvia se presentan en los meses de abril a junio y de septiembre a noviembre, aunque en los últimos años ha habido variaciones en estos patrones.

Un 68% del territorio de la República Dominicana es considerado montañoso y 52% de los suelos son considerados de clase 7, según la clasificación de suelos de los Estados Unidos, o sea de vocación forestal. Es decir que para 25,162 Km. cuadrados del territorio nacional, el uso forestal se considera el más apropiado, incluyendo las áreas que deberán ser destinadas para protección y las zonas que deberían estar dedicadas a la producción forestal ordenada.

Un importante porcentaje del territorio del país, alrededor del 30%, está protegido como Parques o Reservas Nacionales. Estas áreas se ubican en los principales sistemas montañosos, en zonas costeras, y en lugares de importancia para la protección de la biodiversidad o que por su importancia escénica, se consideran de interés. El anexo 1, presenta la lista de las áreas protegidas en el País.

La conformación orográfica del territorio nacional la componen cuatro grandes sistemas montañosos orientados oeste - noroeste a este - sudeste; la Cordillera Septentrional, la Cordillera Central con la Sierra de Yamasá y la Cordillera Oriental, la Sierra de Neiba y la Sierra del Bahoruco. Intercaladas con estas cadenas montañosas se hayan seis cuencas de deposición y llanuras.

Los principales sistemas hídricos del país son el Yaque del Norte, el Yaque del Sur, el Yuna y el Ozama. Estos rios inician sus recorridos en los sistemas montañosos atravesando los valles hasta llegar al mar. Esta conformación favorece la ubicación de sitios para construcción de represas. Los mismos, dividen las cuencas en altas, medias y bajas, siendo este, otro elemento de demarcación, sobre las áreas del territorio nacional, que deben de mantenerse con una cobertura boscosa permanente. Esta distribución orográfica además, permite la disponibilidad de agua para la agricultura de riego que se practica en los valles y llanuras.

## 1.3 La Agricultura

El 12.6% de los suelos del país son de clase buena a excelente para la agricultura, según los mapas elaborados por el Departamento de Inventario de Recursos Naturales (DIRENA), de la Secretaria de Estado de Agricultura y basados en los estudios de la OEA, 1967.

En los años 1983-1984, según el DIRENA, 30,538 Kms cuadrados estaban ocupados por cultivos agrícolas y pastos.

Los principales productos agrícolas son la caña de azúcar, el café, el tabaco y el cacao. Son los llamados cultivos agrícolas tradicionales para la exportación, y que ya no son los que soportan la economia nacional. Otros renglones como el arroz, habichuela, papa, ajo y cebolla, son de amplio cultivo y en los últimos años, las plantaciones de frutales, como los cítricos, en particular la naranja, la piña, el aguacate, tomates, melones, flores y vegetales, han sido ampliamente fomentados, principalmente para la exportación.

***Cuadro 1 - Uso actual de la tierra***

| *Tipo de uso y cobertura* | *área Km²* | *Porcentaje* |
|---|---|---|
| 1. Zona Urbana | 350.91 | 0.73 |
| 2.Agricultura | 12 326.50 | 11.53 |
| 3.Caña de azúcar | 3 929.40 | 8.15 |
| 4.Pastos | 14 282.11 | 29.62 |
| 5.Bosques de pinos | 2 435.41 | 5.05 |
| 6.Latifoliadas | 3 289.77 | 6.82 |
| 7.Bosque seco | 6 660.04 | 13.81 |
| 8.Matorrales | 3 554.99 | 7.37 |
| *Tipo de uso y cobertura* | *área Km²* | *Porcentaje* |
| 9.Mangles | 276.00 | 0.57 |
| 10.Terrenos húmedos | 363.91 | 0.76 |
| 11.Otros | 659.53 | 1.37 |
| **Total** | | **48 128.57** |

**Fuente :** Departamento de Inventario de Recursos Naturales . SEA. 1984

En los últimos años y dentro de la dinámica que recomienda el nuevo orden económico para nuestro país, la República Dominicana se perfila como número uno en la producción de tabaco de la región. Este cultivo se concentra en valles de zona seca con régimen de riego y sin él. El proceso de manejo de este cultivo, post - cosecha, tiene un alto requerimiento de productos forestales como son las varas y los postes, así como de fibras.

Otra parte importante de los suelos nacionales está ocupada por la ganadería, en particular en zonas del este y en el norte y nordeste del país. El 24.5% del territorio son aptos para la ganadería, de los cuales 12.7% pueden usarse para estos fines, sin peligro alguno de causar erosión.

## 1.4 La Minería

La minería es un importante renglón de la economía nacional. Actualmente están siendo explotadas minas de ferroníquel, oro, plata, entre otros minerales y existen yacimientos importantes de bauxita, como la sal y yeso.

## 1.5 Aspectos Socioeconómicos

La República Dominicana tiene una población de 7.5 millones de habitantes, según el informe sobre Desarrollo Humano de las Naciones Unidas para el año 1996, ellos están basados en el Censo Nacional de Población del año 1990. Ésta es una población que creció a una tasa anual de 2.6%, entre los años 1960 y 1993.

La población se concentra en las ciudades. Sólo un 37% se concentra en la zona rural. La capital de la República es la ciudad de Santo Domingo, con más de 2 millones de habitantes, y luego le siguen en importancia las ciudades de Santiago de los Caballeros, San Francisco de Macorís, Puerto Plata, La Romana, San Pedro de Macorís, San Juan de la Maguana, y otras.

El 96% de la población urbana tiene acceso a agua potable, y el 46% de la población rural tiene acceso a este servicio. Sin embargo, los reclamos de agua potable y servicios sanitarios, originan protestas diarias en los barrios de las ciudades y en algunas zonas rurales.

La mortalidad infantil, en menores de cinco años, alcanza la cifra de 40 por mil, de 27 por mil que había en los años 60, según la tabla de disparidad norte-sur, publicada en el Informe sobre Desarrollo Humano, del PNUD.

## 1.6 El Crecimiento Económico. Algunos Indicadores Básicos de la Economía Nacional

La República Dominicana ha experimentado un crecimiento económico promedio de un 3.8% anual, en los últimos años, medido por el crecimiento del PNB. Para el año actual, el Banco Central prevé una tasa de crecimiento de 8%. La tasa de cambio del peso frente al dólar de los Estados Unidos, aunque flota en el mercado, para el año 1997, se ha estabilizado en alrededor de los 14 puntos.

Otros indicadores importantes sobre la situación socioeconómica son el PPP que corresponde a US$3,360 para el año 1994, y el PBI Real per cápita que corresponde a US$3,690, según el informe sobre Desarrollo Humano de 1996.

La tasa de inflación de los años 1980 al 1993, fue de un promedio de 25%. Para el presente año se proyecta una inflación de no más del 8%, según la inflación acumulada a la fecha y las previsiones del Banco Central.

El Producto Interno Bruto por renglones se divide en 15% para el sector Agrícola, 23% para el sector Industrial, y 62% para el sector de Servicios. El Producto Interno Bruto por sector de origen y para la Agricultura, Silvicultura y Pesca del año 1992, según las estadísticas del Banco Central de la República Dominicana era de 5.2%, calculado a la tasa anual de crecimiento porcentual a precios constantes.

## 1.7 Resumen de las estrategias actuales pará el desarrollo del país y de sus principales herramientas para el crecimiento Socioeconómico

La República Dominicana es un país de economía abierta, que al igual que la mayoría de los países de América Latina y el Caribe, ha ido evolucionando, de una economía mercantilista, basada en la exportación de materia prima de base agrícola o mineral, a una economía basada en programas de sustitución de importaciones.

A principio de la década de los 70, comenzó una transformación hacia una economía orientada hacia el turismo, la exportación de mano de obra, a través de los sistemas de zonas francas industriales y la diversificación agrícola de sus productos básicos de exportación: café, azúcar, cacao, tabaco y ganado. Aunque la agricultura sigue siendo uno de los renglones importantes en la generación de divisas, en la última década los sectores turismo y zona franca, unidos a las remesas de los dominicanos que trabajan en el exterior, constituyen el principal aporte al Producto Interno Bruto.

## 1.8 La Importancia del Sector Forestal

El 52% de la superficie de la República Dominicana corresponde a terrenos de vocación forestal. Territorio que puesto bajo este régimen de uso, tiene potencial de generar empleos, de manera permanente, para miles de familias en la zona montañosa, de sustituir importaciones de madera y otros rubros que alcanzan alrededor de 114 millones de dólares por año. Sobre todo, el desarrollo forestal de estas áreas, garantizará a la República Dominicana, la posibilidad de producir energía y agua limpia para consumo humano y riego, en las más importantes cuencas que constituyen su territorio, para el uso de la producción agrícola en los valles y llanuras.

Esto último, es especialmente importante para la República Dominicana, primero por la ventajosa distribución orográfica que presenta su territorio, constituido por sistemas intercalados de valles, llanuras y montañas, y por el programa de inversiones en infraestructuras, de represas y sistemas de riego, que desde el año 1963, vienen desarrollando los gobiernos de la República Dominicana y por la necesidad de conservar el potencial hidroeléctrico, aún no aprovechado totalmente.

En los últimos años, y de forma reiterada por las actuales autoridades, la política económica nacional está orientada, esencialmente, a mantener la estabilidad macroeconómica, para lograr la inserción del País a los mercados globales y favorecer la entrada de capital extranjero, incluyendo el desmonte del sistema de tarifas e impuestos aduanales, siguiendo los lineamientos de los mercados internacionales (GATT).

En el marco de esta política, aumenta la importancia del uso apropiado de los suelos nacionales, según su vocación natural, lo que permitirá aprovechar las ventajas comparativas que estos recursos representan.

## 1.9 Breve Historia de los Usos del Bosque

Hasta principios de la década de 1930 la República Dominicana tenía una cobertura forestal que alcanzaba alrededor del 75% de su territorio. La población rural usaba las áreas menos frágiles y de menos pendiente, para la producción de alimentos y la crianza de ganado, la industria de procesamiento de madera no existia como tal, a excepción de proveer la demanda local de madera y la exportación de unos pocos miles de metros cúbicos de madera preciosa, extraída y procesada artesanalmente.

Al inicio de la Segunda Guerra Mundial, la República Dominicana se convierte en un exportador importante de madera y se inicia en el país el desarrollo de una industria forestal, que siguió los patrones de lo que en ese momento era la tecnología extractiva para el manejo del bosque, que caracterizó el florecimiento de la industria maderera de la época, en Centro y Sur América. Esto ocasionó que en sólo tres décadas el país perdiera gran parte de su cobertura vegetal, sin que se establecieran provisiones para la reposición del recurso bosque, por medios naturales o artificiales.

Para muchos estudiosos del área, este fenómeno fue de mayor impacto en la República Dominicana, por el agravante de que la familia Trujillo, que gobernó dictatorialmente el país por más de 30 años, convirtió los aserraderos en uno de los negocios del patrimonio familiar.

Para el año 1965, después de la caída de Trujillo y superados los traumas sociopolíticos que significó el cese de la dictadura, una guerra civil en el país inicia un proceso de reinstitucionalización. Para esta fecha el país había perdido una gran parte de su cobertura vegetal y la población rural había aumentado, con las miles de familias que se trasladaron a las zonas boscosas, para emplearse en la próspera industria maderera.

El gobierno constitucional establecido en esos años recibió informes alarmante de los niveles de deforestación, especialmente en las cuencas altas del país y como reacción a los cuales, se establece como política nacional el cese en el uso del bosque como recurso productivo. Se clausuran por ley todos los aserraderos existentes y se establecen por leyes y decretos áreas protegidas.

Sin embargo, el desigual acceso a la tierra de la población rural, que en ese momento sobrepasaba el 60% de la población nacional, el alto índice de desempleo, ocasionado por el cierre de los aserraderos, y la falta de capital para el desarrollo de la agricultura y la ganadería, determinaron el no cumplimiento de la ley de prohibición del corte de la madera. Se pasa a un periodo caracterizado por los desmontes ilegales y permisos de limpieza y cortes, autorizados por el gobierno, a familias que poseían grandes extensiones de terrenos, para establecer ganadería, motivados por la prohibición del uso del bosque, lo cual es una motivación económica racional.

Con la clausura de los aserraderos, en 1967, y hasta la fecha, se desarrolló una percepción de que los árboles era un recurso que no podía ser tocado, y que el único uso de la foresta era la conservación de las cuencas y de la biodiversidad. Esta percepción es, especialmente, defendida por los habitantes urbanos, que no tienen la vivencia de lo que representa la subutilización del recurso bosque, para los poseedores de terrenos en áreas montañosas y para la población rural desempleada. Percepción que es igualmente compartida, por algunos de los grupos ecologistas.

## 1.10 La Percepción Nacional del Sector

Con el objetivo de precisar el alcance del sector forestal, así como de identificar los productos y servicios del mismo, definimos lo que hemos encontrado como la percepción del país del sector forestal.

Se percibe el Sector Forestal, como uno de los renglones de la economía nacional, compuesto por los productos y servicios obtenidos del uso racional del bosque, compuesto por árboles y arbustos. Estos productos y servicios incluyen bienes y servicios directos, con valor de mercado, así como servicios sociales, que pueden ser debidamente identificados y valorados, a precios social o a precio sombra; como es el caso del aporte del bosque como cobertura de los suelos, para disminuir la erosión de las cuencas, fenómeno que afecta principalmente los embalses y canales de riego.

Para los fines de este estudio, no se considera como sector forestal las áreas de bosque destinadas a la preservación de la biodiversidad y de micro climas específicos, lo que está al cuidado del Sistema Nacional de Parques y Areas Protegidas. A continuación nos referiremos brevemente a aportes que se espera como País que realicen estas zonas boscosas al desarrollo nacional, ya sean las áreas silvestres o los Parques Nacionales, y por lo cual algunos sectores consideran importante la protección de los recursos naturales.

### *1.10.1 Para el Sector Turismo*

El ecoturismo es una actividad de reciente introducción en el país, que se practica en menor escala y mediante iniciativa privada. En los últimos 5 años, la Asociación Nacional de Hoteles y Restaurantes (ASONAHORES) y otras empresas en la industria del turismo, han despertado el interés de la Secretaría de Estado de Turismo para incorporar de esta actividad dentro de la industria turística nacional. Es un sector con gran potencial para el desarrollo nacional, dada la amplia gama de ecosistemas presentes en el país y su singular belleza.

### *1.10.2 Para la Protección de la Biodiversidad*

La República Dominicana es signataria de convenciones internacionales para la conservación de la Biodiversidad. El Estado Dominicano ha firmado un contrato con el Programa de las Naciones Unidas para el Desarrollo, destinado a promover la conservación y el manejo de la Biodiversidad en la zona costera y que se ejecuta con la participación de la Oficina Nacional de Planificación (ONAPLAN), una Oficina coordinadora de las Naciones Unidas, organizaciones no gubernamentales y Universidades, incluyendo la Universidad Estatal. Uno de sus importantes objetivos, es el de promover el establecimiento de una política de administración de la zona costera, donde entre otros importantes recursos naturales, existen extensos manglares.

### *1.10.3 Otros*

Otros valores sociales del Sector Forestal para contribuir en el aumento de la calidad de vida del dominicano y que empiezan a ser valorados lo representa la vegetación en áreas urbanas para limpieza del aire, y amortiguación de ruidos.

# 1.11 Descripción de las Agencias Relacionadas al Sector

## *1.11.1 Agencias Estatales*

*Oficina Nacional de Planificación (ONAPLAN):* La Oficina Nacional de Planificación es dependencia del Secretariado Técnico de la Presidencia y está constituida por la anterior Junta Nacional de Planificación y Coordinación, creada por la ley No. 5788 de enero de 1962. Todas las Oficinas de programación de las instancias estatales deben coordinar sus actividades con el Secretario Técnico de la Presidencia, a través de ONAPLAN.

*Comisión para la Ejecución del Plan Quisqueya Verde*: El Plan Nacional Quisqueya Verde refleja la preocupación gubernamental sobre el medio ambiente y se ejecuta a través de las organizaciones públicas o privadas que realizan trabajos en el sector. Se aspira a plantar 44 millones de plantas, en los próximos 4 años. El Plan Quisqueya Verde, amparado en el decreto No. 138 del año 1997, se apoya en la necesidad que tiene el Estado, de articular las acciones de las instituciones que trabajan en el sector de los recursos naturales y el medio ambiente. Está presidido por un Consejo Directivo, encabezado por el propio Presidente de la República, y lo integran además, los Secretarios de Estado de las Fuerzas Armadas, Agricultura, Técnico de la Presidencia, el Gobernador del Banco Central, el Director General Forestal, el Presidente de la Comisión Nacional Técnica Forestal, y el Director Nacional de Parques. También están incluidos, como parte del Consejo Directivo, los Directores del Instituto Nacional de Recursos Hidráulicos, del Zoológico Nacional, del Jardín Botánico, del Instituto Agrario Dominicano, de la Oficina Nacional de Planificación (ONAPLAN), el Asesor Ambiental del Poder Ejecutivo, y tres representantes de organizaciones de la sociedad civil.

*Comisión Presidencial para la Reforma y Modernización del Estado*: Para la modernización del estado dominicano que plantea el gobierno actual, se creó esta Comisión, que a su vez conforma distintas subcomisiones. Una de ellas aglutina a las instituciones oficiales que inciden en el sector de los Recursos Naturales.

*Comisión Nacional Técnica Forestal (CONATEF):* Mediante la Ley No. 705 del año 1982, se crea esta Comisión con el mandato de trazar los lineamientos de la política forestal del país y velar por la preservación y el desarrollo forestal nacional. Diecinueve instituciones públicas y privadas pertenecen al Pleno de la CONATEF (ver capítulo 6).

*Dirección General Forestal (DGF):* Creada en 1962, para fomentar la actividad forestal nacional, en especial velar por la conservación de los bosques nacionales. Es el organismo responsable de ejecutar la política forestal nacional. En la actualidad está adscrita a la Secretaria de las Fuerzas Armadas.

*Dirección Nacional de Parques (DNP):* Creada mediante la Ley No. 67 de 1976. Es responsable de preservar y promover las muestras representativas de los ecosistemas nacionales.

*Subsecretaria de Recursos Naturales (SURENA):* Creada por Ley No. 8 del 8 de septiembre de 1965, adscrita a la Secretaria de Estado de Agricultura. Tiene las facultades de preservar los recursos naturales renovables, reglamentar su uso, incrementarlos y fomentar su racional aprovechamiento. Racionalizar de acuerdo con las leyes y las técnicas el uso de la tierra. Reglamentar la conservación de las aguas y colaborar en el uso y distribución de las aguas de irrigación. Velar por la recuperación ecológica y el aprovechamiento de las áreas que hayan sido afectadas por la explotación de los recursos naturales. Promover el buen uso e incremento de los recursos naturales, mediante programas de educación y promover recolectar y difundir las informaciones climatológicas en el territorio nacional.

*Instituto Nacional de Recursos Hidráulicos (INDRHI):* Creada por la ley No. 6 del 8 de septiembre de 1965, es responsable de administrar las aguas superficiales y subterráneas, por lo cual se identifica con el interés nacional de preservar los recursos naturales, como medio de producir agua para la generación de energía eléctrica, para el consumo humano y para riego.

*Instituto Agrario Dominicano (IAD):* La Ley 5879 crea el Instituto Agrario Dominicano y es administrador de grandes extensiones de terrenos del estado donde puede desarrollar los proyectos específicos que crea necesario para llevar a efecto los programas a ejecutar.

*El Plan Sierra:* Promovido por el Estado Dominicano desde 1979, realiza sus actividades en el área de las cuencas de los ríos Amina, Mao y Bao, importantes afluentes del río Yaque del Norte. Uno de sus objetivos es lograr el cambio de uso de los suelos de la región, hacia usos que provean una cobertura permanente a los suelos, a fin de proteger las inversiones en infraestructuras para la producción de energía eléctrica, agua potable y de riego en los valles, específicamente en el valle occidental del Cibao.

Empezó con programas de educación, viveros y reforestación comunitaria, donando plantas y todos los costos para el establecimiento de las plantaciones. Luego encaminó gestiones para realizar un inventario de los bosques de la Sierra, obtener permiso para manejar un bosque modelo, que le permitiera adquirir las experiencias y formar el personal capaz de desarrollar proyectos más amplios, en la República Dominicana.

Luego promovió el programa de Planes de Manejo de Bosques Privados, donde a pesar de la veda del corte, garantizaba ante el estado el uso ordenado de los bosques y así obtenía permisos de aprovechamiento para propietarios privados, y más adelante lograr la formación de una Asociación de Productores de Bosques, hoy legalmente incorporada.

Elaboró una propuesta, presentada al Banco Interamericano para el Desarrollo, BID, para el manejo de la cuenca alta del río Mao.

Tiene establecido un Programa de Educación Vocacional, para formar los jóvenes artesanos y mecánicos que servirán a la renaciente y tecnificada industria forestal.

### 1.11.2 Agencias del Sector Privado

*Federación de Productores y Productoras de Bosque Seco (Feprobosur):* es una organización sin fines de lucro, que agrupa a los productores legales de madera del suroeste. Se interesan en mejorar las condiciones de vida de sus afiliados, por medio a obtener mayores ingresos, provenientes de la comercialización sin intermediarios de los productos del bosque.

*Microempresa Forestal de Zambrana Cotui:* Promovido por Enda - Caribe, la Microempresa Forestal de Zambrana está formada por pequeños propietarios de terrenos, que plantan mayormente Acacia mangiun, para la producción de madera. Tienen una industria forestal donde procesan su materia prima y comercializan otros productos del bosque. Como parte del crecimiento de la industria, auspician a los hijos de los socios estudios de ebanistería y carpintería.

*Asociación de Productores de Bosque de la Sierra (APROBOSI):* Promovidos por el Plan Sierra, la Asociación realiza operaciones de manejo de plantaciones forestales. Tiene en proyecto conjuntamente con el Plan Sierra la instalación de un aserradero.

*Floresta:* Es una organización privada cristiana, sin fines de lucro, orientada a incentivar la reforestación en el territorio nacional. Para la autosuficiencia institucional, entre otras actividades, gestionan una finca de productos forestales, donde se comercializan varas y postes, entre otros productos provenientes de plantaciones forestales.

*Fundación Loma Quita Espuela:* Ejecuta programas de conservación y desarrollo en una área protegida, a través del manejo de los recursos naturales de su zona de amortiguamiento, entre otras actividades.

*Fundación Progressio:* Sus programas tienen por objeto promover el mantenimiento de los recursos naturales del país, la conservación de sus bosques, el aprovechamiento de sus aguas, el mejoramiento de las áreas de cultivo y el fomento de plantas, con potencial económico para el país. Realizan programas de reforestación con pequeños y medianos agricultores en la cuenca alta del río

Jimenoa. Así como programas para la recuperación de especies nativas que están en vías de extinción.

*Centro de Desarrollo Agropecuario y Forestal (CEDAF):* Antigua Fundación para el Desarrollo Agropecuario, FDA, este Centro ejecuta diversos programas, para apoyar la investigación agrícola y forestal nacional. Su reciente cambio de nombre reafirma su compromiso con el desarrollo forestal nacional. Ha financiado estudios para la instalación en el país de un huerto clonal del Pino dominicano (Pinus occidentalis Sw).

*Junta Agroempresarial Dominicana (JAD)*: En la Junta funciona un Comité Forestal, que agrupa una parte importante de los empresarios forestales nacionales.

# 2. LAS POLÍTICAS FORESTALES

## 2.1 La Posición Nacional

Una de las limitaciones en la que se ha desarrollado el Sector Forestal en la República Dominicana, ha sido que no existe una política forestal nacional, que haya trazado las pautas para hacer activos los beneficios potenciales de este sector en la economía nacional.

Las acciones de los gobiernos, en los últimos diez años, se han centrado en mantener la prohibición sobre el uso del bosque, y en hacer enunciados y compromisos públicos, en lo referente a llevar a cabo programas y proyectos con el objetivo de promover y aumentar la reforestación artificial de áreas antiguamente cubiertas de bosques.

La Dirección General Forestal, surgió con el mandato de cuidar y vigilar los bosques, para que se cumpliera la ley de protección forestal. Esta institución hasta el presente ha asumido como uno de sus importantes roles, la labor de policía forestal.

En el año 1982, el gobierno de turno hizo varias declaraciones públicas de intención, sobre el compromiso del gobierno, de crear mecanismos que aseguraran el uso racional del recurso bosque y la ley 705 del año 1982, establece mecanismos para permitir el manejo de bosque, basados en planes técnicamente elaborados, que deben ser sometidos y aprobados por la CONATEF, para el manejo de áreas específicas.

En el 1983, se hizo una enunciación de lo que sería la Política Forestal del gobierno de entonces, que se puede resumir como sigue: *"Volver a la autosuficiencia en producción de madera, para lo cual nuestras montañas tienen que ser cubiertas de nuevo y los bosques actuales protegidos adecuadamente. Todo esto lo podemos lograr, a la vez que se cuide, seriamente, de la protección de nuestros suelos y nuestros ríos."*

Para dar seguimiento a este enunciado, se fortaleció la CONATEF, creada el año anterior, y se nombró la Oficina Ejecutiva de la misma.

Se estableció una ley de incentivo forestal, que ofrecía incentivos a las inversiones en el sector forestal, como descuentos al pago de impuestos. También se creó el Fondo para el Desarrollo Forestal, que fue puesto bajo la administración del Banco Central de la República Dominicana.

En el 1986, hubo un cambio de gobierno y un consecuente cambio en la aplicación de estos enunciados y en el funcionamiento de las instancias que llegaron a concretarse. Se volvió a la tendencia de la prohibición del uso del recurso forestal.

## 2.2 Política Forestal Actual

En este documento consideraremos el gran interés del gobierno en la conservación de los recursos naturales, reflejado en las declaraciones presidenciales en torno al tema, y las estrategias y planes establecidos por la CONATEF y DGF, instituciones rectoras y ejecutoras, respectivamente de la política forestal nacional, como la "Política Forestal" actual.

Siendo así, para los fines de este trabajo, vamos a tomar como Política Forestal, los objetivos de la CONATEF, señalados en un documento interno reciente, y que de forma resumida, enuncia que dirigirá sus acciones hacia tres grandes renglones:

a. Trazar políticas que promuevan el desarrollo sostenible del sector y la adecuada organización institucional.
b. Promover el aumento y mejoramiento de la cobertura boscosa.
c. Contribuir al desarrollo de la Industria Forestal.

De su parte, la DGF, a través de su Director actual, ha enunciado su política de trabajo, enmarcada dentro del principio de permitir el aprovechamiento ordenado de los bosques. Se dio un plazo para levantar y aprovechar la madera muerta, ya sea seca en las fincas o guardada en casas o almacenes, flexibilizó los mecanismos de obtención de permisos en los terrenos de vocación agrícola que requerían corte o podas de árboles, en particular en las zonas agrícolas, cacaotaleras y cafetaleras, entre otras medidas.

**La Comisión Nacional Técnica Forestal (CONATEF):**

En un ejercicio de Planificación Estratégica, realizado en el Centro de los Montones, San José de las Matas, en 1997, los Directivos y Técnicos de la CONATEF, definieron sus responsabilidades de la manera siguiente :

- Trazar las Políticas Forestales
- Promover el desarrollo sostenible del Sector
- Coordinar las instituciones del Sector
- Promover la investigación y transferencia de tecnología
- Propiciar el ordenamiento y el manejo racional del bosque
- Contribuir al desarrollo de la Industria Forestal competitiva
- Promover el establecimiento de leyes y reglamentos forestales coherentes
- Fiscalizar el cumplimiento de la Legislación Forestal Nacional
- Crear incentivos y mecanismos de apoyo al desarrollo Forestal
- Promover la formación de recursos humanos de apoyo al desarrollo Forestal
- Canalizar recursos nacionales e internacionales para el desarrollo Forestal
- Contribuir con el mejoramiento de la calidad de vida de la población rural
- Insertar al Sector Forestal en el Plan Nacional de Desarrollo
- Promover planes educativos forestales para la población en general

**La Dirección General Forestal (DGF):**

La DGF entiende como sus funciones regular la conservación, fomento y aprovechamiento de la vegetación forestal, y el comercio de los productos forestales que de ella se derivan, así como la administración nacional del servicio forestal, el desarrollo e integración adecuado de la Industria Forestal, según manifiesta en el documento : Formulación del Presupuesto 1998.

Para cumplir estas funciones, se ha trazado un objetivo general, que consiste en fomentar la preservación, conservación y el desarrollo de los recursos forestales del País, a través del fortalecimiento institucional, que le permita el robustecimiento de sus trabajos, en las diferentes fases, tomando como base la integración consciente de los diversos sectores de la sociedad, teniendo como principio el uso racional, sustentable y sostenible de los recursos naturales.

En octubre del 1997, la Dirección General Forestal en su Estrategia Forestal para Lograr la Conciliación entre la Conservación y el Desarrollo señala que el País requiere de una política diferente en el sector forestal, y que ésta deberá tener los siguientes objetivos :

Lograr la conciliación de los intereses económicos inmediatos con las necesidades de conservación, en el entendido de que las masas forestales pueden y deben suministrar bienes y servicios a las generaciones presentes y futuras, sin desmedro de su cantidad y calidad.

Propiciar el aprovechamiento racional y científico de los recursos forestales de manera que estos se conviertan en un factor de desarrollo económico y social.

Asegurar la preservación y el mejoramiento de la cubierta forestal en las áreas que por sus condiciones requieran ser manejadas para fines de protección.

Lograr un aumento sustancial de la cubierta forestal del País, a través del establecimiento de plantaciones forestales y agroforestales estatales y privadas, y por fomento de la regeneración natural y el manejo del fuego.

Mejorar las condiciones de pobreza de las comunidades rurales en áreas forestales, mediante la generación de empleos en programas de reforestación y manejo forestal, así como el otorgamiento de facilidades para mejorar la vivienda rural y sus condiciones sanitarias.

Integrar a la producción forestal recursos ociosos o subutilizados.

## 2.3 Disposiciones relacionadas al Sector Forestal

### *2.3.1 Para el manejo de Bosque*

A partir del año 1982, la ley 705 permite el manejo de bosques y desde el año 1983, el Plan Sierra aplica proyectos sostenibles de manejos de bosques, basado en una autorización especial de la Presidencia de la República y de la DGF. En la actualidad, existe además, la autorización especial para que FEPROBOSUR realice el manejo del bosque seco en áreas específicas.

### *2.3.2 Para la Reforestación*

Las actividades de reforestación están declaradas como prioridad nacional y a partir de este año, el Gobierno ha creado un programa especializado, denominado Plan Quisqueya Verde, que tiene como uno de sus más importantes objetivos fomentar la reforestación a nivel nacional.

### *2.3.3 Para la Conservación de las Áreas Protegidas*

En el País existe un Sistema de Áreas Protegidas, bajo la administración y custodia de la DNP. Según la Ley 67 del año 1974, el establecimiento de estas áreas viene de una recomendación del Comité Asesor de la DNP, al Presidente de la República. Es prerrogativa del Poder Ejecutivo promulgarla, una vez aprobada por el Congreso Nacional. La Constitución de la República, permite al Presidente, promulgar por decreto, medidas que considere necesarias al país. Ha sido el caso de la declaración de muchas de las áreas protegidas.

### *2.3.4 Para la Formación de los Recursos Humanos*

En la República Dominicana los recursos humanos que trabajan en el sector forestal se formaban mayormente en escuelas agrícolas tradicionales. A partir del año 1963, unas decenas de dominicanos se formaron en escuelas y universidades extranjeras, en carreras forestales. Es decir, que el gobierno

Dominicano ha enviado jóvenes a estudiar Dasonomía, en la Escuela Nacional de Ciencias Forestales (ESNACIFOR), en Honduras y a estudiar Ingeniería Forestal en universidades extranjeras.

Posteriormente se establecieron en el país escuelas que atienden las necesidades del sector y especialidades en las universidades, entre ellas se pueden mencionar:

- La Dirección General Forestal que opera una escuela de Peritos Forestales, en Jarabacoa con programas de estudios de 2 años.
- A partir de 1976, el Instituto Superior de Agricultura, con sede en Santiago, estableció la concentración en Recursos Forestales dentro de la carrera de Ingeniería Agronómica, que impartía con la Universidad Católica Madre y Maestra. Además, a partir de 1974 envió muchos técnicos a realizar estudios de Maestría y Doctorado en ciencias forestales en universidades extranjeras. Desde 1992, ofrece la carrera de Técnicos en Dasonomía.
- Por decreto 164-96 se autoriza la operación de la Universidad Agroforestal Fernando Arturo de Meriño en la ciudad de Jarabacoa.
- Existen otras universidades privadas que ofrecen la carrera de agroforestería.
- La Universidad Nacional Pedro Henríquez Ureña ofrece un post - grado en Manejo de Recursos Naturales.

### 2.3.5 Para la Industria Forestal

Como consecuencia de la Ley Forestal del año 1967, que prohibió el aprovechamiento de los árboles y clausuró los aserraderos en la República Dominicana no existe una industria forestal nacional. Desde 1982, disposiciones puntuales han permitido la operación de aserraderos manejados por instituciones incorporadas.

A pesar de esta situación, el uso de leña y carbón, traviesas, postes y varas y además follajes, se permite mediante la presentación de solicitudes específicas, para casos también específicos. Estos permisos son manejados mediante un proceso tortuoso y personalizado, que en su momento ha incluido permisos para chapeos en zonas llanas, dedicadas a la ganadería.

### 2.3.6 Para los Financiamientos

El país no cuenta con mecanismos de financiamiento que promuevan el desarrollo del Sector Forestal. El sistema bancario nacional y los programas de crédito que se promueven, no se corresponden con los requerimientos de plazo e intereses que demanda el sector.

El Plan Nacional Quisqueya Verde financia actividades de reforestación, a proyectos particulares y a asociaciones. Algunas de las plantaciones se realizan por préstamos que pasan a los dueños de terrenos a ser pagados con los primeros aprovechamientos.

Recientemente el Banco Agrícola abrió una línea de créditos, con un monto de 2 millones de pesos, para los interesados en el fomento de plantaciones agroforestales y forestales.

### 2.3.7 Para la Investigación

No hay un plan nacional de investigación forestal. Los esfuerzos para la investigación en el sector forestal en la Dirección General Forestal han sido tímidos. Este año el plan de trabajo de la Dirección señala que se intensificarán las investigaciones en torno a la silvicultura de especies nativas y endémicas, producción de plantas, rendimiento por Ha/ año y en el control de plagas y enfermedades.

La CONATEF no está dotada de un departamento de investigación. A la fecha, la investigación forestal en el País descansa en trabajos realizados en universidades e instituciones privadas.

#### 2.3.7.1 Investigación Forestal Aplicada: Plan Sierra

En vista de la autorización especial para que el Plan Sierra ejecutara programas de manejo ordenado de los bosques en un área de 1700 Kms 2, y al no haber tradición para la investigación forestal en los centros de investigación nacional y, para resolver los problemas que se presentan día a día en el manejo de los bosques, tanto de pinares como de especies latifoliadas, el Plan Sierra decidió iniciar un programa de estudios básicos. A la fecha con la finalidad de producir plantas de alta calidad tiene en ejecución programas de mejoramiento de la calidad de las semillas y para el caso del pino criollo está instalando un huerto semillero; da seguimiento a las pruebas de los diferentes substratos para la producción de plantas, en diferentes envases, y con aplicaciones de micorriza, fertilización, control de sombra en el vivero; se da seguimiento en el campo al establecimiento de las plantaciones provenientes de estos ensayos, para llegar a conclusiones que permitan hacer recomendaciones de costo - beneficio. Otros estudios tienen que ver con el transporte de las plantas al campo, las técnicas de plantación y las densidades de plantación.

Las labores silvícolas como los chapeos, coronas podas y su rentabilidad también son objeto de estudio y seguimiento.

Finalmente, se establecieron parcelas de crecimiento. Éstas han permitido conocer los incrementos de volumen anual por zona y sus conclusiones son las que permiten hacer los planes de corta quinquenales y anuales.

### *2.3.8 Propuestas de Estudios del Plan de Acción Forestal Tropical (PAFT)*

Con el objetivo de mejorar la calidad de vida en la zona rural a través de la generación de empleos, contribuir en el ahorro de divisas a través de la sustitución de importaciones de productos forestales, proveer oportunidades de desarrollar los recursos humanos necesarios, el Plan de Acción Forestal, impulsado por la FAO en 1987, propuso una serie de proyectos y actividades que permitirían al país dar un salto cualitativo y cuantitativo en los esfuerzos de mejorar la calidad de la vida de las zonas rurales, en particular las de vocación forestal.

Estas propuestas, a la vez que se producirían beneficios ecológicos de conservación de suelos y disminución de la sedimentación de embalses de las presas, la conservación de la capacidad generadora de energía hidroeléctrica, conservación de la capacidad productiva de alimentos en los valles, aportarían beneficios para la conservación de la biodiversidad.

El Plan de Acción Forestal Tropical identificó numerosos programas de acción. Contiene además los perfiles de numerosos proyectos de inversión. Para su revisión pueden referirse al documento Plan de Acción Forestal en los Trópicos, REPUBLICA DOMINICANA, Proyecto Gobierno /PNUD/FAO/ Interagencias DOM/82/002.

## 2.4 Resumen de la Cronología de las Normas, Reglamentos y Disposiciones Administrativas Relacionadas al Sector Forestal:

Del año 1884, donde se identifica la primera disposición administrativa de carácter forestal en la República Dominicana a la fecha han sido numerosas las disposiciones legales que regulan las actividades del sector.

En el 1907, se crea el servicio de guarda campestres.

En el 1919, se crea el Servicio Forestal adscrito a la Secretaria de Estado de Agricultura.

En el 1920, la Ley 586 sobre reservas forestales creaba los bosques nacionales estatales.

En el 1928, se promulga la Ley 944 sobre Conservación de Bosques y Aguas y derogan la Orden Ejecutiva 365 / 1919. A esta Ley 944 se le hicieron modificaciones en los años 1934, y 1943, orientadas a la protección y aumentando las regulaciones hasta entonces vigentes.

En la actualidad salvo los artículos que no han sido modificados está vigente la ley 5856 del 1962, sobre Conservación Forestal y Árboles Frutales.

En el anexo 2, encontrará referencia de otras leyes y decretos relacionadas al sector, mencionadas en los documentos del PAFT.

## 2.5 Sobre la Legitimación de la Política Forestal

El sistema de aprobación y legitimación de la Política Forestal está disperso, dependiendo de la estructura gubernamental en la que se origina. El sistema legislativo nacional requiere que las leyes tengan aprobación bicameral y promulgación del Poder Ejecutivo.

**Para los decretos:**

Pueden surgir de sugerencias provenientes de diferentes estamentos gubernamentales, o del sector privado, o ambas. Se requiere que no entre en contradicción con la Constitución y su promulgación por el Poder Ejecutivo.

**Las Normas de la Comisión Nacional Técnica Forestal:**

Las normas y reglamentos para regular las actividades del sector requieren ser aprobadas por la mayoría del pleno de la CONATEF y no pueden contradecir la Constitución, ni las leyes o decretos presidenciales vigentes.

## 2.6 Sectores No Forestales que impactan los árboles y el bosque

### a. Agricultura

En términos generales, en República Dominicana no existe un plan de ordenamiento de uso de los suelos. Uno de los temas de discusión es la competencia entre el uso agrícola y la ganadería, especialmente en zona de montaña.

### b. La Política de Desarrollo Industrial

En los últimos años las industrias de zona franca conjuntamente con el turismo constituyen las dos principales fuentes de divisas para la República Dominicana. Se estima que actualmente estos dos sectores emplean alrededor de 300,000 dominicanos. Las empresas de zona franca generadoras de empleos para mano de obra no calificada quitan presión al Bosque y se nota la disminución del avance de la agricultura de subsistencia hacia terrenos marginales y hacia bosques de segundo crecimiento. El turismo por su parte afecta el bosque y los arboles en cuanto a competencia de espacio, sobre todo en lo referente al turismo ecológico.

### c. El uso de las cuencas hidrográficas para la generación de energía y agua límpia

La República Dominicana depende en más de un 70%, del petróleo importado para la generación de electricidad. Sin embargo el territorio nacional tiene la posibilidad de generar el 100% de la energía que requiere actualmente, a través de plantas hidroeléctricas. El desarrollo de este potencial está altamente vinculado con el futuro de los árboles y el bosque y con las políticas forestales que se implementen.

# 3. TEMAS ACTUALES QUE SON PROBLEMAS CRÍTICOS Y QUE OCUPAN LA ATENCIÓN PÚBLICA

**a) La legislación vigente, que resulta extensa y confusa**

En el año 1997, en el estudio realizado por la Organización de las Naciones Unidas para la Alimentación y la Agricultura, FAO, en el marco del Plan de Acción Forestal en los Trópicos, FAO: DP/DOM/86/002, Documento de Campo No. 12 nombrado: Estudio de la Legislación e Instituciones Forestales en la República Dominicana, el Profesor Francisco Ortuño, dice que la aplicación de este importante Plan hacía necesario la revisión del marco legal forestal, más adelante señalaba, que esta revisión debia eliminar aquellas disposiciones que pudieran impedir su viabilidad, e incorporar nuevas, que pudieran resultar necesarias.

Estos comentarios siguen teniendo vigencia y en el citado documento hay un recuento de la legislación nacional sobre el tema.

Otras medidas, algunas transitorias, han sido tomadas posteriormente, como lo es el decreto que prohibía el aprovechamiento de los árboles de Juan Primero. Ésto disgustó a algunos, pero alegró a otros.

**b) La tasa de deforestación**

Como tema obligado de los medios de publicación nacional, está el tema de la deforestación. El Banco Mundial estima que en el País se pierde anualmente 400 $Km^2$. de bosque, equivalente a un 2.5% de la superficie boscosa existente. Investigadores privados estiman que la proporción deforestación versus reforestación es mayor de 20 a 1.

Políticos, maestros, funcionarios, comerciantes, empresarios, diversas asociaciones comerciales, se solidarizan con la preocupación que permanentemente se externa en los medios de comunicación. Las denuncias sobre el mal trato al Medio Ambiente son continuas y todos quieren aportar en la gran tarea de la reforestación nacional.

**c) La sequía y como los conservacionistas la relacionan con la falta de cobertura boscosa**

Coyunturalmente el País está siendo afectado por una sequía prolongada. En una revisión de la prensa nacional se refleja que una parte de la ciudadanía relaciona la sequía con la deforestación. Esta situación alimenta la corriente que favorece la preservación pura de este recurso.

**d) Los Planes de Gobierno, la Política para el Uso de los Suelos y la Legislación sobre este tema**

Podemos afirmar que hay consenso alrededor del entendimiento de que no existen políticas definidas para el uso de los suelos agrícolas ni forestales, ni mucho menos una legislación coherente al respecto, es un tema de discusión permanente entre profesionales, universidades, instituciones, partidos políticos mayoritarios y organismos no gubernamentales de la sociedad civil.

Resulta conflictivo y contradictorio el uso del recurso bosque, en cualquiera de sus modalidades. En la actualidad, la legislación concentra muchos elementos prohibitivos y coercitivos en cuanto al uso de este recurso.

La producción de carbón, muebles y otras artesanías con maderas, provenientes de cortes ilegales, se ha hecho de uso común y es un tópico de continua discusión.

**e) Uso del recurso bosque y la percepción de los conservacionistas sobre este tema**

Entendemos que el sector forestal es percibido diferentemente por dos corrientes. Los que entienden que es un sector de gran potencial, que usado de forma sostenible, puede generar riquezas y

empleos para el desarrollo de la nación y los que consideran que el sector forestal es parte de un patrimonio nacional a preservar, y que por lo tanto no debe promoverse su uso y desarrollo, en ninguna actividad económica.

**f) Los Incendios Forestales**

Se señala que cada año se pierden miles de tareas de bosque. La Dirección General Forestal menciona que en los últimos cinco años se han incendiado 247 mil tareas de bosques con una pérdida económica de 46 millones de pesos. Hasta agosto del año actual: 1997, se habían producido 225 incendios forestales que han afectado 207 mil tareas. Esta alta incidencia se debe en parte a la intensa sequía que se presentó, y la preocupación reside en que el país no está preparado para afrontar estos desastres.

**g) El Manejo Inadecuado de las Cuencas Hidrográficas**

Otro tópico de preocupación nacional es el relativo al manejo de las cuencas hidrográficas, por la importancia que las mismas revisten ante el alto potencial hidroeléctrico nacional, de producir energía limpia y las grandes inversiones realizadas en los estudios y construcciones de algunas de ellas y ante las denuncias constantes que están sedimentándose los embalses.

**h) La Falta de Fondos Asignados a los Programas de Conservación de los Recursos Naturales**

En este tema se cita la falta de seguimiento para la firma de los convenios internacionales y el seguimiento a los compromisos que de ellos se derivan. Se incluye además, el hecho de que a pesar de la extremada preocupación por los recursos naturales las acciones encaminadas a este sector no reciben el apoyo presupuestal esperado. El gobierno actual está encaminando acciones para que el País se actualice en este punto. La Cancillería de la República y los organismos involucrados ya han dado pasos en este sentido.

**i) Los Incentivos Forestales**

Los productores de madera quisieran ser incluidos dentro de los planes de incentivos aprobados para promover otros sectores productivos. Recientemente se aprobó la tasa cero para las importaciones de maquinarias e insumos utilizados en las actividades agropecuarias. Se aspira que el sector forestal sea igualmente protegido.

**j) Las Areas Protegidas. Sus límites**

Una gran controversia está en marcha en el país, con respecto a las áreas protegidas y sus usos, frente al desarrollo de las mismas, como fuentes de riqueza. Una nueva disposición presidencial, que modifica límites por decreto y redime ciertas áreas, así como cambia nombres y categorías originó una gran controversia nacional. Ésta causó la suspensión del decreto, y la formación de una Comisión, para que estudie el caso y de sus recomendaciones, para posterior decisión del Poder Ejecutivo. Esta controversia es otra manifestación de las dos corrientes principales en la percepción de la población en lo relativo a uso racional y la preservación.

**k) Las Plagas y las Enfermedades de los Pinares**

Últimamente el tema de las plagas y las enfermedades de los pinares ha sido una preocupación de la sociedad civil, los funcionarios y técnicos del sector. La alta presencia de árboles secos y la presencia del Ips. y de los síntomas del Leptographium en los pinares nacionales han causado gran alarma. Recientemente el Director General Forestal, anunció un plan de saneamiento de los bosques nacionales.

## 3.1 Descripción de las Reformas Institucionales en Proceso relacionadas con el Sector Forestal

Cursa en el Congreso Nacional una propuesta para reformar la legislatura forestal actual. Este proyecto recoge recomendaciones del estudio del Profesor Francisco Ortuño, emitidas dentro del Plan Acción Forestal Tropical, antes mencionado. Se propone la creación de un Instituto Nacional de Recursos Forestales (INAREF), como organismo superior que regule todo lo relativo a los recursos forestales nacionales y al mismo tiempo sea responsable de aplicar la ley forestal. Este Instituto asumiria las funciones de la CONATEF y de la DGF.

Entre los importantes objetivos de INAREF, se encuentran y cito de la propuesta:

- "establecer un marco legal y una estructura institucional acorde con las necesidades actuales de conservación y desarrollo de los recursos forestales
- promover y normar la protección del uso sustentable de los recursos forestales, estableciendo reglas que permitan la incorporación de la sociedad civil, como pilar fundamental en la gestión para el desarrollo y la conservación de éstos
- asegurar la conservación de los bosques existentes, tanto en su calidad como en su distribución geográfica, y la recuperación de áreas actualmente desprovistas de vegetación, para garantizar sus funciones ecológicas, sociales y económicas
- recuperar y desarrollar bosques en tierras de aptitud forestal, para que cumplan con la función de conservar los suelos y aguas, dinamizar el desarrollo rural mediante la generación de ingresos que contribuyan al beneficio económico y social de la nación"

Para cumplir estos objetivos señala que "definirá la política forestal del País". La misma sería remitida periódicamente al Presidente del País para su conocimiento y aprobación.

La propuesta crea un Fondo Forestal destinado a financiar programas de desarrollo forestal. Este fondo se nutriría con las asignaciones del estado; el aprovechamiento de bosques propiedad del estado; multas; remates de productos decomisados; sellos postales; donaciones; préstamos y otras fuentes.

## 3.2 Otras modificaciones en estudio

Aunque no está ligada directamente al desarrollo forestal, vale mencionar en este momento, que una Comisión ha sido nombrada por el Poder Ejecutivo, para resolver conflictos de uso de las áreas protegidas.

# 4. LOS PROCESOS Y LOS MECANISMOS PARA FORMULAR E IMPLEMENTAR LAS POLÍTICAS FORESTALES

## El Proceso de Formulación de las Políticas

La Política Forestal Nacional la establece el Poder Ejecutivo. Forma parte del programa de gobierno, por el cual la población votó y la ejecuta través de las siguientes instancias: El Consejo Nacional de Desarrollo, formado por los ministros y representantes de la sociedad civil. El Secretariado Técnico de la Presidencia, que es responsable del Plan de Desarrollo Nacional y la CONATEF, es la responsable de la Política Forestal.

El sistema democrático actual, fundamentado en la búsqueda de consenso para solucionar los problemas nacionales, favorece que el establecimiento de políticas esté basado en las agendas de

desarrollo surgidas como resultado del diálogo establecido entre los diferentes sectores de la sociedad dominicana.

Los partidos políticos dominicanos ofertan planes de gobierno, tratando de responder a las demandas y expectativas de la sociedad civil organizada y estos planes de gobierno representan la expresión de las políticas que requiere el proceso de desarrollo dominicano. La elección del gobierno de turno representa la decisión popular. En el caso de las últimas elecciones, de mayo de 1996, había consenso entre los tres partidos políticos mayoritarios sobre la Política Forestal que se iba a implementar.

La implementación de estas políticas es responsabilidad de la organización gubernamental predefinida para cada caso en particular. La elección de los planes de gobierno específicos, está a cargo de la CONATEF y la DGF o de otras instituciones relacionadas con el sector.

Un ejemplo de un mecanismo de búsqueda de consenso, ha sido la elaboración de la Agenda Nacional de Desarrollo, que contiene planes de acción para lo que las personas convocadas y que son líderes nacionales identifican como las 10 prioridades nacionales.

Esta Agenda, cuya elaboración fue liderada por el llamado grupo de Acción por la Democracia, creó espacios y mecanismos para la presentación de prioridades de parte de todo el sector productivo nacional, a través de las asociaciones de comerciales e industriales, de las centrales de trabajadores, de las iglesias locales, universidades y grupos comunitarios de zonas rurales y urbanas. La agenda incluye como prioridad nacional No.10, propuestas para la protección y uso de los recursos forestales, y fue asumida como un documento a tomar en consideración, en mayo de 1996, por los entonces partidos mayoritarios.

Se reconoce en el gobernante actual el interés de organizar el País y de dar oportunidad para la participación de la ciudadanía en decisiones relacionadas con el uso de los recursos naturales.

## 4.1 Búsqueda de Consenso para la Toma de Decisiones. Talleres y Seminarios

### *4.1.1 Seminario sobre Sistemas agroforestales: Reforestación y Ecosistemas en el Noroeste*

En este Seminario auspiciado por el Instituto para el Desarrollo del Noreste, INDENOR, se difundieron las alternativas que presenta el desarrollo de sistemas sostenibles de producción agroforestal como alternativa para la reforestación, y preservación de los recursos naturales y el medio ambiente, como forma de diversificar y mejorar los niveles de ingresos en esa zona montañosa.

### *4.1.2 Seminario Taller Diagnóstico y Definición del Marco*

Conceptual para la Reforma y Modernización del Sector Recursos Naturales y Medio Ambiente

Las instituciones públicas del sector Recursos Naturales y Medio Ambiente celebraron un evento a través del cual reconocerían la situación institucional, y legal del sector, y unificarían sus criterios en torno al término desarrollo sustentable.

### *4.1.3 Seminario sobre Reforestación y Manejo de Bosques*

Recientemente se realizó, con el auspicio de la FAO y el Plan Sierra, un seminario sobre reforestación y manejo de bosques. Uno de los objetivos principales era llamar la atención hacia la

foresta como una alternativa de desarrollo y sobre el problema de las plagas y enfermedades que atacan a los pinares de la República Dominicana, mayormente por falta de un manejo adecuado.

Para las conclusiones y recomendaciones se dividió a los participantes en cuatro grupos de trabajo, según el área de interés de cada cual y se elaboraron unas preguntas guía. A continuación presentamos los resultados de este seminario, para el tema de Políticas Forestales.

Para el tema de Políticas Forestales había cuatro preguntas guía, como sigue:

**1. Cómo se enuncia la Política Forestal Nacional.**
**Respuesta:**
En tránsito, en movimiento
Restrictiva, poco ágil
Conservacionista
Dispersa, poco aplicativa
Bases erróneas, no clara
Desarticulada y contradictoria

**2. Qué se entiende como Sector Forestal Nacional. Qué subsectores abarca.**
**Respuesta:**
Es el conjunto de instituciones y organizaciones, y el marco legal que conlleva al ordenamiento, establecimiento y conservación de los recursos forestales.

**3. Cuáles se entienden como las principales limitaciones que enfrenta el Desarrollo Forestal Nacional.**
**Respuesta:**
La ausencia del plan de ordenamiento forestal
Falta de recursos financieros
Ausencia de incentivos
Falta de inversión para la investigación y desarrollo de tecnologías
Falta de integración institucional
Ausencia de coherencia entre lo planteado y lo ejecutado
Falta:
Cultura de largo plazo
Continuidad / institucionalidad
Confianza de la población
Ley clara que provea un marco legal sencillo.

**4. Qué acciones se recomendarían para llegar al establecimiento de políticas que favorezcan el avance del Desarrollo Forestal Nacional.**
**Respuesta:**
Apoyo gubernamental a las instituciones y organizaciones que desarrollen proyectos exitosos.
Impulsar los anteproyectos de leyes que cursan en las cámaras legislativas y que inciden en el desarrollo forestal sostenible.

## 4.2 Consulta Nacional

Para los fines de este estudio se consultó con organizaciones gubernamentales, con instituciones privadas y con destacados profesionales que se desenvuelven en el sector forestal para conocer sus opiniones y sugerencias sobre la política forestal, el marco legal que la sustenta y las acciones que se realizan dentro de este sector.

Al analizar las respuestas recibidas se hizo evidente que no hay un entendimiento de cual es la política forestal nacional y en la mayoría de los casos se confunde la política con las leyes vigentes, con las funciones que se asignan a las instituciones del sector, sobre todo a la Comisión Nacional Técnica Forestal y a la Dirección General Forestal. En algunos casos se definía como la política forestal al contenido de programas que ejecutan estas instituciones. El Plan Nacional Quisqueya Verde se presenta como uno de los instrumentos más visibles de ejecución de la Política Forestal. Quizás vale la pena señalar, que tomando esta percepción de los consultados el objetivo de

Quisqueya Verde es la reforestación y conservación de los bosques, no necesariamente el manejo forestal.

Otro aspecto común en las respuestas recibidas es que la "Política Forestal" no está basada en una política sectorial adecuada y que la misma es confusa sobre todo por la falta de coincidencia entre la enunciación de objetivos y propósitos y las acciones que se realizan.

En cuanto a los problemas del sector forestal más urgentes, los consultados consideraron lo siguiente: es necesario lograr un mejor arreglo institucional, asegurar los recursos que requiere el desarrollo de este sector y adecuar la legislación actual.

La consulta mostró además que no hay un proceso identificado explícito para la definición de políticas. No hay coincidencia en las respuestas.

## 4.3 Consenso para la Realización de Actividades en las Zonas de Amortiguamiento

La Dirección Nacional de Parques ha convocado a las organizaciones públicas y a las comunidades que viven en las llamadas zonas de amortiguamiento de los Parques de la Cordillera Central, para consultas sobre las actividades que se pueden realizar en el entorno del área protegida y las que no deben realizarse.

Las comunidades luego de una ronda de reuniones entregaron su propuesta a la Dirección Nacional de Parques, quienes posteriormente la estudiaron junto a las demás instancias oficiales y llegaron a las conclusiones siguientes:

- En cuanto a los mecanismos de permitir las actividades en zonas de amortiguamiento la DNP, recomienda que a través de la administración del Parque se envíe el plano catastral certificado de la parcela que corresponda y así se da el certificado de no objeción.
- No se deben permitir ningún cultivo dentro del Parque y mucho menos de ciclo corto
- El café puede ser renovado y rehabilitado en la zona de amortiguamiento pero debe ser eliminado dentro del Parque debido al peligro de la broca
- En la zona de amortiguamiento deben de considerarse facilidades de créditos para la mayor parte de las actividades permisibles exceptuando las pecuarias que son altamente degradantes para toda la región, ésto sería una forma de desincentivar dicha actividad económica
- Para la concesión de créditos además de los títulos, el Banco Agrícola requerirá la carta de no objeción de la Dirección Nacional de Parques y un listado de las acciones a realizar de manera que se pueda determinar si existe alguna actividad nociva a la zona
- Deben eliminarse las actividades pecuarias dentro del Parque
- Se debe permitir coordinando con la DNP, institución que le expedirá un certificado de no objeción si procede, el aprovechamiento de los árboles dentro de los predios para la reparación de viviendas. Deberán contar además con la autorización de la Dirección General Forestal.

En resumen las actividades permitidas en la zona de amortiguamiento del Parque son:

Café con sombra
Agroforestería
Frutales
Plantaciones forestales
Actividades pecuarias restringidas
Apicultura

Las actividades no permitidas en la zona de amortiguamiento del Parque serían:

Manejo de bosque natural
Corte indiscriminado de árboles

Agricultura intensiva con uso agropecuario
Actividad pecuaria intensiva

# 5. LA DIMENSIÓN FÍSICA DEL SECTOR FORESTAL

**Los Recursos Disponibles**

La última aproximación cuantitativa de la dimensión física del recurso Forestal a nivel nacional, fue realizado por el programa CRIES en 1980, con el Proyecto Land Cover Use Inventory for the Dominican Republic Through Visual Interpretación from Land Sat Images. Francisco Ortuño, consultor contratado por el PAFT para el estudio de la legislación e instituciones forestales en la República Dominicana, realizado en 1987, acepta como válidas las cifras presentadas por este Proyecto, cuyos resultados son coincidentes con las estimaciones de la FAO sobre la Situación del Bosque Dominicano para el 1980, FAO/WPD. Una evaluación de los recursos naturales por imágenes satélites fue ejecutada por el Departamento de Inventario de los Recursos Naturales de la Secretaría de Estado de Agricultura, el Servicio Alemán de Cooperación Social, con la colaboración del Jardín Botánico Nacional, durante los años 1993-1995. Sus resultados están a la fecha inéditos.

**Los Recursos Forestales**

Referido al Estudio de la Legislación e Instituciones Forestales en la República Dominicana, presentada por el Sr. Francisco Ortuño, en el marco del proyecto PNUD/DOM/86/002, Plan De Acción Forestal en los Trópicos, Organización de las Naciones Unidas para la Agricultura y la Alimentación presentamos a continuación el cuadro que resume la disponibilidad de recurso forestal por clase de bosque y su estado de conservación:

***Cuadro 5.1 - Unidades físicas requeridas para el desarrollo del Sector Forestal en la República Dominicana.***

| *Clases de Bosques :* | *Bien Conservado* | *Degradados* | *Total* |
|---|---|---|---|
| Latifoliadas | 203, 000 Ha | 444, 000 Ha | 647, 000 Ha |
| Coníferas | 39, 000 Ha | 185, 000 Ha | 224, 000 Ha |
| Total | 242, 000 Ha | 629, 000 Ha | 871, 000 Ha |

Fuente: PNUD / DOM / 86 / 002, Plan De Acción Forestal en los Trópicos, Organización de las Naciones Unidas para la Agricultura y la Alimentación

**Los bosques de coníferas:**

Las 39 mil hectáreas de bosques coníferos bien conservados, y después de excluir el 20% estimado como área de protección, representan 30,000 Has de bosque manejables que a pesar del deterioro que afecta el recurso forestal nacional, usados ordenadamente podrían generar riquezas por el orden de los 1.5 billones de dólares. Ésto representa un importante aporte al Producto Interno Bruto y al crecimiento económico del país. En adición, están los beneficios que representa la cobertura boscosa bien manejada para la estabilidad de los recursos hídricos y la biodiversidad.

Revisando los datos de incremento anual del bosque de coníferas que ha sido medido en el área de influencia del Plan Sierra, y las informaciones contenidas en el Plan Maestro para el Desarrollo de La Sierra, y extrapolando esas informaciones para los bosques de esta especie en el resto del país, se puede asumir un crecimiento anual de 10 $M^3$/Ha/año. Las 30,000 Has de bosques manejables, mencionadas anteriormente tendrían un incremento anual de 300,000 $M^3$. Con un programa de aprovechamiento conservador de un 50% de este incremento se aseguraría la disponibilidad de 150 mil metros cúbicos de madera por año. Se estima que la demanda nacional de madera para construcción y ebanistería es de alrededor de 1 millón de metros cúbicos anuales.

El rendimiento que se estima asegura los recursos para cubrir los costos de manejo y la reforestación de una área de alrededor de 4 mil Has por año. Ésta es la meta de reforestación anual que propone el Plan de Acción Forestal Tropical. Esta reforestación permitiría en el futuro aumentar el plan de aprovechamiento y aseguraría la sostenibilidad del modelo.

Con un programa de aprovechamiento racional de los bosques existentes fuera de los Parques Nacionales, acompañados de la reforestación de las áreas potenciales para el uso forestal, la República Dominicana, puede lograr la autosuficiencia en producción de madera en un plazo de 15 a 20 años.

Las áreas con potencial para desarrollar estos programas de aprovechamiento y reforestación como el modelo descrito en el párrafo anterior, ya han sido identificadas en el País, (Per Cristiansen, PAFT, 1987), las mismas son:

1. Restauración y Sabana Clara
2. Bonao, Villa Altagracia y Bayaguana
3. Jarabacoa y Constanza
4. El área de influencia del Plan Sierra
5. La Sabana de San Juan
6. Bahoruco (al norte del Parque Nacional)

***Cuadro 5.2 - Bosque y área con potencial de desarrollo del Sector Forestal en la República Dominicana.***

| *Proyectos* | *Bosque (Has)* | *Plantación (Has)* | *Area A Plantar (Has)* |
|---|---|---|---|
| Sabana Clara | 5,000 | 1,100 | 10,000 |
| Sabana De San Juan | 900 | 0 | 15,000 |
| Villa Altagracia | 200 | 890 | 20,000 |
| Jarabacoa | 10,000 | 3,200 | 20,000 |
| Plan Sierra | 16,000 | 2,000 | 45,000 |
| Bahoruco | 3,000 | 0 | 10,000 |
| Totales | 35,100 | 7,190 | 120,000 |

Fuente: Plan de Acción Forestal para los Trópicos, 1987

***Cuadro 5.3 -Unidades físicas requeridas para el desarrollo del Sector Forestal en la República Dominicana***

| *Proyectos* | *Carreteras (Kms.)* | *Camionetas (Unidades)* | *Camiones (Unidades)* | *Tractores (Unidades)* | *Motosierras (Unidades)* |
|---|---|---|---|---|---|
| Sabana Clara | 25 | 4 | 2 | 4 | 4 |
| Sabana De San Juan | 4.5 | 2 | 1 | 2 | 2 |
| Villa Altagracia | 1 | 1 | 1 | 1 | 1 |
| Jarabacoa | 50 | 8 | 4 | 8 | 8 |
| Plan Sierra | 80 | 12 | 6 | 12 | 12 |
| Bahoruco | 15 | 3 | 1 | 3 | 3 |
| Totales | 175.5 | 30 | 15 | 30 | 30 |

***Cuadro 5.4 - Recursos económicos que generaría el desarrollo del Sector Forestal Dominicano y los costos asociados con el mismo basado en el aprovechamiento de 240,000 $m^3$ por año y la plantación de 4,000 has por año***

| *Actividad* | *Ingresos* | *Costos* | *Beneficios* |
|---|---|---|---|
| Industria | 384,000,000 | 0 | 384,000,000 |
| Costo de la materia prima | 0 | 192,000,000 | -192,000,000 |
| Costo de la industria | 0 | 96,000,000 | - 96,000,000 |
| **Subtotal** | **384,000,000** | **288,000,000** | **96,000,000** |
| | | | |
| Aprovechamiento | 192,000,000 | 0 | 192,000,000 |
| Costo actividad de aprovechamiento | 0 | 96,000,000 | -96,000,000 |
| Costo de plantaciones* | 0 | 40,320,000 | -40,320,000 |
| **Subtotal** | **192,000,000** | **136,320,000** | **55,680,000** |
| **Total** | **576,000,000** | **424,320,000** | **151,680,000** |

Fuente: Estimaciones basadas en las experiencias del Plan Sierra.
* Pinus occidentalis y P. caribaea.

Los beneficios generados por la industria y el aprovechamiento se pueden utilizar en la amortización de las inversiones que se describen en el cuadro 5.5.

***Cuadro 5.5 - Inversiones requeridas para el desarrollo del Sector Forestal Dominicano***

| *Actividades* | *Monto estimado RD$* |
|---|---|
| Caminos y carreteras | 34,500,000 |
| Equipos de transporte | 100,000,000 |
| Equipos y maquinarias para aserrío | 35,000,000 |
| Motosierra y repuestos | 2,500,000 |
| Total | 172,000,000 |

Fuente: Estimaciones basadas en las experiencias del Plan Sierra

Estos programas constituirían una fuente permanente de generación de empleos de bajo costo. Ya en 1987, en publicación de la Fundación Progressio, Don E. Armenteros señalaba que con una inversión de 51 millones de pesos por año se creaban 16,283 empleos permanentes y se ahorraban a partir del sexto año 133 millones de dólares que necesitaremos erogar, para sustituir con petróleo importado la leña y el carbón y lo que corresponde al valor de la pulpa.

***Cuadro 5.6 - Generación de empleos posibles para el desarrollo del Sector Forestal Dominicano***

| *Actividades* | *Cantidad de empleos fijos* | *Cantidad de jornales* |
|---|---|---|
| Producción de 10 millones plantas/año | 20 | 44,000 |
| Plantación | 50 | 65,000 |
| Aprovechamiento | 24 | 35,000 |
| Industrialización | 24 | 25,000 |

Fuente: Basado en las experiencias del Plan Sierra

**Los Bosques secos**

En cuanto al manejo del bosque seco, vamos a seguir las experiencias de la Federación de Productores de Bosques del Sur, FEPROBOSUR, que desarrolla proyectos de aprovechamiento sostenible del bosque seco en el suroeste del país.

Según datos de FEPROBOSUR, en el Suroeste del pais hay 500 mil hectáreas de bosques manejables. El aprovechamiento racional de estas áreas de bosque seco permitiría aprovechar alrededor de 1 millón de metros cúbicos de madera para leña, carbón, postes, varas, traviesas y para el uso en artesanías.

El PAFT estimó en 1987, que la demanda anual de leña y carbón en el país era de alrededor de 4 millones de metros cúbicos. Ésto implica que hay un mercado asegurado para la producción y que se podría extender esta experiencia a las restantes 147 mil Has de bosque seco existentes, además de la posibilidad de aumentar la cobertura de suelos a través de la reforestación con especies latifoliadas para climas secos.

La experiencia de FEPROBOSUR, es que la demanda nacional de carbón ha bajado en los últimos años, pero el manejo del bosque seco sigue garantizando la oferta de otros productos con alta demanda, además de la opción que representa la demanda de carbón del vecino País de Haití.

**b) Los Indicadores Nacionales Básicos de Consumo de Productos Forestales**

La República Dominicana pasó de ser exportador de madera de construcción hasta la década del 40 a ser importador. En los años ochenta ya se importaban 30 millones de pesos en madera, y para 1997 se reportaban importaciones netas superior a los 114 millones de dólares.

Con relación al consumo de leña y carbón para 1970, la FAO estimaba un consumo anual per capita de 0.45 de metros cúbicos.

**c) Ventajas Comparativas para la Producción de Servicios Medioambientales para apoyar las actividades claves de la economía nacional, los ecosistemas y los sistemas productivos en general**

El bosque, que permite la estabilidad de los suelos de montaña, es la garantía para la producción de energía y agua limpia que como ya mencionabamos antes, en el caso de la República Dominicana tiene un alto potencial de aporte al producto nacional. Estudiosos como el Ing. Marcelo Jorge en un análisis solicitado por el Plan Sierra señala que el potencial del País de aumentar este porcentaje es alto, hasta casi cubrir la demanda nacional de energía eléctrica.

El bosque es además, garantía para la existencia de especies de la fauna y la flora que dada la condición de estar el País ubicado en una isla es de suma importancia para asegurar su permanencia. El desarrollo forestal ordenado tiene que garantizar esta permanencia. Las notables variaciones topográficas que componen el relieve del País, entre otras características, dan origen a la existencia de una gran variedad de ecosistemas con características muy peculiares que albergan aproximadamente 5 mil 600 especies de plantas superiores (R. García et. al, 1997), muchas de las cuales sólo crecen en la parte este de la isla.

**d) Ventajas Comparativas del País para la Producción de Artículos de Alto Valor de Mercado**

Consecuencia directa del desarrollo forestal sería el desarrollo de la industria del mueble de madera de alta calidad, así como de la producción de los elementos de terminación de las construcciones como son las puertas, ventanas, gabinetes y otros artículos.

La experiencia artesanal desarrollada en la República Dominicana conjuntamente con el aposicionamiento geográfico de la isla constituyen una valiosa ventaja para el desarrollo de esta industria derivada de la foresta. Solamente en la zona de La Sierra operan actualmente más de 80 talleres para la producción de artículos de madera para el consumo local. Decenas de talleres en las ciudades ya tienen experiencia exportando muebles de alta calidad y precios a Estados Unidos y varios países de la región del Caribe. La posibilidad de elaborar estos muebles con madera de producción nacional aumenta considerablemente el aporte de esta industria a la economía nacional.

# 6. ARREGLOS INSTITUCIONALES

En este capítulo trataremos de identificar el marco organizacional del país para formular y analizar políticas forestales.

El Presidente del país es responsable de asegurar que se ejecuten las políticas planteadas en su programa de gobierno y por lo cual la mayoría de la población votante del país le eligió.

El marco organizacional del país para formular y analizar políticas forestales está definido por una estructura compuesta por las siguientes instituciones.

## 6.1 Las Instituciones

Oficina Nacional de Planificación (ONAPLAN): Tiene como función asesorar a las demás instituciones para la preparación de los programas de desarrollo sectoriales, supervisa y revisa las ejecutorias de los programas.

En los aspectos del medio ambiente formula la política para el desarrollo de los programas y proyectos que tiendan a su conservación y protección, así como a la de los diferentes ecosistemas que conforman el territorio nacional.

Esta dependencia, tiene como función ofrecer asistencia y supervisión técnica, a todas las Secretarías de Estado y Direcciones de Instituciones Autónomas. En el caso del sector forestal nacional es una de las instituciones agrupadas en el pleno de la Comisión Nacional Técnica Forestal (CONATEF).

Como instituciones nacionales estatales de principal importancia para el sector están, la Comisión Nacional Técnica Forestal (CONATEF) y la Dirección General Forestal (DGF), descritas en el capitulo 1.

Plan Nacional Quisqueya Verde de reciente creación sirve como canalizador de recursos hacia el sector forestal nacional, especialmente los recursos dedicados hacia las actividades de reforestación.

## 6.2 Presupuesto y canales de solicitud de los fondos

Los recursos económicos dedicados a las actividades del sector forestal son asignados en el presupuesto general de la Nación cada año. Siendo incluidos en el mismo a través de la Formulación de los Presupuestos correspondientes que someten las instituciones ligadas al Sector a través de ONAPLAN y de la Oficina Nacional de Presupuesto. El Poder Ejecutivo conforma el presupuesto nacional y lo somete a aprobación de las Cámaras Legislativas. Una vez aprobado, la Oficina Nacional de Presupuesto asigna las partidas solicitadas según las ejecuciones periódicas. Cada una de las instituciones es responsable de la ejecución del presupuesto asignado.

El Poder Ejecutivo, ya sea por iniciativa propia o por solicitudes presentadas por las instituciones del Sector o una Organización No Gubernamental ligada al mismo, puede realizar asignaciones extra presupuestarias. Adicionalmente las instituciones pueden realizar actividades generadoras de ingresos dentro de sus ejecutorias.

Otras fuentes de fondos vienen de aportes que vienen del sistema de cooperación bilateral internacional o de préstamos para el desarrollo. En ambos casos estos recursos son negociados a través de la Oficina Nacional de Planificación y el Secretariado Técnico de la Presidencia.

Entre las instituciones internacionales que ofertan apoyo técnico y financiero se encuentran el Programa de las Naciones Unidas para el Desarrollo, la Organización de las Naciones Unidas para la Agricultura y la Alimentación, el Programa de Alimentos de las Naciones Unidas, el Programa de las Naciones Unidas para el Medio Ambiente, la Agencia Internacional para el Desarrollo de los Estados Unidos, la Agencia Alemana para la Cooperación Internacional, el Servicio Social Alemán, la Agencia Sueca para la Cooperación Internacional Técnica y Económica, la Agencia Japonesa para la Cooperación Internacional, el Instituto de Cooperación Iberoamericano del Gobierno español, la Agencia Suiza para la Cooperación Internacional, así como el Banco Interamericano de Desarrollo y el Banco Alemán de la Reconstrucción.

## 6.3 Inversión Nacional del Sector Público en el Sector Forestal

En el siguiente cuadro, se puede apreciar los presupuestos ejecutados por las instituciones que trabajan directamente en el sector forestal dominicano, durante el periodo 1996 al 1997, y el presupuesto aprobado para el año 1998.

***Cuadro 6.1 - Presupuesto ejecutado por CONATEF, DGF y Plan Nacional Quisqueya Verde en el período 1994 a noviembre de 1997***

| *Instituciones* | *1994* | *1995* | *1996* | *Ejecución 1997* | *Total* |
|---|---|---|---|---|---|
| Comisión Nacional Técnica Forestal (CONATEF) | 3,687,003 | 2,088,829 | 2,814,497 | 4,301,003 | 12,891,332 |
| Dirección General Forestal (DGF) | 27,570,222 | 33,443,631 | 45,623,120 | 57,846,916 | 164,483,889 |
| Plan Nacional Quisqueya Verde | | | | 10,000,000 | 10,000,000 |
| Totales | 31,257,225 | 35,532,460 | 48,437,617 | 72,147,919 | 187,375,221 |

Fuente: Oficina Nacional de Presupuesto

El cuadro anterior refleja para el presente año con relación al año anterior un incremento en la asignación presupuestal del 48.95%. Los fondos destinados al sector aumentaron de 0.2 a 0.4% del Presupuesto nacional. Contemplándose para el año 1998, un aumento de más del 229%, con una asignación correspondiente al 0.9%. Este aumento es una muestra del interés de las actuales autoridades por el desarrollo del sector.

En el cuadro 6.2 se puede observar el presupuesto formulado para el año de 1998, por las instituciones del sector forestal dominicano.

***Cuadro 6.2 - Presupuesto formulado por CONATEF, DGF y Plan Nacional Quisqueya Verde para el año de 1998***

| Instituciones | 1998 |
|---|---|
| Comisión Nacional Técnica Forestal (CONATEF) | 17,961,530 |
| Dirección General Forestal (DGF) | 224,888,194 |
| Plan Nacional Quisqueya Verde | 60,000,000 |
| Totales | 302,851,722 |

Fuente: Formulación de Presupuesto de las Instituciones

## 6.4 Organigrama y Capacidades Administrativas Locales y Regionales

**Dirección General Forestal (DGF)**

Para lograr su función la DGF cuenta con una Dirección, la cual está ocupada, según la Ley Orgánica de la misma, por un militar con un rango mínimo de coronel, una Subdirección, un Departamento Administrativo, un Departamento de Auditoría, y las siguientes **Divisiones:** Administrativa, Estudios, Ingeniería, Personal, Coordinación de los Distritos Forestales, Cuencas Hidrográficas, Planificación y Evaluación de Proyectos y finalmente una División Técnica.

**A nivel regional cuenta con 12 Distritos Forestales distribuidos en las siguientes localidades:** Santo Domingo, Jarabacoa, Santiago, San José de las Matas, San Juan de la Maguana, Barahona, Dajabón, San Pedro de Macorís, Higüey, Azua, Puerto Plata y Bayaguana.

Los Distritos Forestales son unidades técnico-administrativas responsables de llevar a cabo las actividades de supervisión y vigilancia de los bosques.

A excepción de los cargos directivos, la mayoría de las posiciones técnicas y administrativas en el interior del país son ocupadas por personal con escasa preparación para desarrollar sus funciones y no necesariamente formados en escuelas forestales. En el país hay recursos humanos disponibles, que podría ser reubicado si se le garantizaran paquetes laborales competitivos.

**Comisión Nacional Técnica Forestal (CONATEF)**

El Pleno de la CONATEF está formado por los titulares de las instituciones miembros y éstos son:

- Universidad Nacional Pedro Henríquez Ureña (UNPHU)
- Fundación Progressio
- Asesora Legal Externa de la Comisión Nacional Técnica Forestal
- Universidad Central del Este (UCE)
- Dirección General Forestal
- Pontificia Universidad Católica Madre y Maestra (PUCMM)
- Instituto Superior de Agricultura (ISA)
- Asesor Ambiental del Poder Ejecutivo
- Secretario de Estado de Agricultura
- Plan Nacional Quisqueya Verde
- Instituto Nacional de Recursos Hidráulicos (INDRHI)
- Banco Agrícola
- Instituto Agrario Dominicano
- Universidad Autónoma de Santo Domingo (UASD)
- Dirección Nacional de Parques
- Oficina Nacional de Planificación (ONAPLAN)
- Asociación para el Desarrollo de San José de Ocoa
- Plan Sierra
- Instituto de Desarrollo del Sur (INDESUR)

Además, forman parte del Pleno el Presidente y el Vicepresidente de la CONATEF, los cuales son nombrados por el Poder Ejecutivo mediante decreto y también asisten al Pleno el Secretario Ejecutivo y el Consultor Jurídico de la CONATEF. Estos dos para la toma de decisiones tienen derecho a voz pero no a voto.

La Oficina Ejecutiva de la CONATEF cuenta con un Departamento Técnico y un Departamento Administrativo.

Para agilizar los trabajos de la CONATEF se pueden formar subcomisiones provinciales y para casos de tareas especializadas se forman subcomisiones técnicas.

# 7. IMPLEMENTACIÓN E IMPACTO DE LAS POLÍTICAS FORESTALES

En este capítulo identificaremos las acciones llevadas a cabo para lograr los objetivos de los planes forestales del país, así como las actividades relacionadas al seguimiento de estos planes, en el entendimiento de que no giran alrededor de una política que logre la esperada racionalidad entre el uso del recurso y su preservación.

## 7.1 Las medidas

El proceso de deterioro de los bosques nacionales es una preocupación del Estado desde el siglo pasado. Así lo indican las numerosas medidas que se han tomado desde entonces, sin embargo existe la percepción de que las luchas de intereses sobre quien "domina" el sector no permiten el avance necesario en la tecnificación de la actividad y los gobernantes se encuentran en medio de una

disyuntiva entre la población que requiere la incorporación del sector como fuente de desarrollo, los técnicos y los militares.

En el año 1987, se cifraron esperanzas en el Plan de Acción Forestal Tropical que se basaba en una política de uso sostenible del bosque. En este Plan se consideraban medidas de corto y largo plazo para la incorporación del sector en la economía del país.

Las medidas a tomar quedarían contenidas en el Plan de Acción Forestal elaborado para los próximos 25 años. Con asistencia técnica externa se realizó un estudio muy completo del sector forestal, basado en el Acuerdo suscrito el 30 de diciembre de 1986, entre el Estado Dominicano y la Comisión Nacional Técnica Forestal, la ONU y la FAO, dentro del Programa de Acción Forestal en el Trópico. En el estudio colaboraron el Banco Interamericano de Desarrollo y los gobiernos de Alemania e Israel aportando técnicos especializados.

Este Plan de largo plazo a ser implementado en periodos de 25 años significaba:

a) Producción y manejo de los recursos forestales para suplir necesidades de la zona rural y posteriormente excedentes para la venta y generación de ingresos.
b) Manejo de los recursos naturales en áreas criticas para producción de agua, energía eléctrica, productos forestales y alimentos.
c) Producción de materia prima para la industria forestal nacional.

Toda esta actividad se previó con el componente de reforestación incluido. Se proponía la reforestación de 27,000 Ha de coníferas y 31,000 Ha de latifoliadas en los primeros cinco años. Para que ésto sucediera se propuso la revisión de los marcos legales e institucionales y de los esquemas que para la reforestación existen en la actualidad.

Como hemos manifestado anteriormente es difícil identificar la Política Forestal Nacional. Hasta el momento se llama Política Forestal Nacional a acciones dispersas que su forma de aplicación depende del entendimiento del funcionario que debe de tomar la decisión.

## 7.2 Acciones del Gobierno

Sin embargo por las motivaciones que fueran hay un gran interés en reforestar en todo el país y se refleja en las numerosas actividades que se realizan en este sentido. La gran reforestación comercial de grandes extensiones sin embargo es escasa. Los esfuerzos más importantes son los que realiza el Plan Sierra y recientemente el Instituto Nacional de Recursos Hidráulicos. El Plan Quisqueya Verde está iniciando labores de reforestación tanto en áreas de conservación como en plantaciones con fines comerciales.

### *7.2.1 Proyecto de Desarrollo Agrícola del Valle de San Juan. Prodas*

En el año 1996, se inicia la ejecución con fondos del Banco Interamericano de Desarrollo, BID, del Proyecto de Desarrollo Agrícola de San Juan de la Maguana con el objetivo de contribuir al desarrollo agropecuario de la región. Uno de los componentes considerados es la restauración y preservación de los recursos naturales de la región entendiendo la importante relación entre la presencia de la zona y la producción de agua para irrigación en el Valle. Se está complementando este componente a través de amplios programas de reforestación en la subcuenca alta del río San Juan, incluyendo la reforestación dentro del Parque Nacional José del Carmen Ramírez. El proyecto sin embargo no señala si en el futuro las áreas plantadas se aprovecharan para la producción de madera y por ende generación de riquezas adicionales para los habitantes de las zonas altas que hoy se dedican a agricultura de rubros de ciclo corto.

### 7.2.2 El Plan Maestro para el Desarrollo de la Sierra. Plan Sierra

Con el objetivo de contar con una guía técnica que priorice las acciones para el reordenamiento de las importantes cuencas de los ríos Mao, Amina y Bao se elaboró en el 1991, el Plan Maestro para el Desarrollo de La Sierra.

Para la elaboración de este Plan se tomó como base toda la documentación acumulada existente y producida durante la vida del proyecto Plan Sierra y complementariamente se realizó la cuantificación del uso de la tierra, así como del volumen de la madera existente en base a un inventario realizado basado en la interpretación de fotografías aéreas tomadas en ese momento y confirmaciones con chequeos de campo.

Con la elaboración del Plan Maestro en el área de influencia del Plan Sierra se ha logrado:

- Cuantificar el potencial forestal de la región que abarca 3% del territorio nacional
- Determinar la factibilidad técnica y económica de la aplicación del modelo global que propone el Plan Sierra en el área forestal, y se determinaron los recursos necesarios para aprovechar este potencial en términos de organización y fortalecimiento institucional

Como resultado del trabajo se confirmó de la propuesta inicial la necesidad de provocar un cambio de uso de los suelos de La Sierra como se indica en el Cuadro 7.1.

***Cuadro 7.1 - Uso actual (1991) y propuesto del suelo para el área de influencia del Plan Sierra.***

| Tipos de uso | Actual 1991 | Propuesto |
|---|---|---|
| Bosque | 38.0 | 60.0 |
| Café | 9.0 | 18.0 |
| Pastos | 34.0 | 18.0 |
| Conuco | 6.0 | 4.0 |
| Barbecho | 13.0 | 0.0 |

Fuente. Plan Maestro para el Desarrollo de La Sierra. 1991

Este trabajo permitió al Plan Sierra determinar la ubicación de los sitios donde deben hacerse los cambios de uso de suelos y así como disponer de una herramienta que le permite diseñar una estrategia de trabajo para lograr el cambio.

Se propone la reforestación con énfasis en coníferas de 39,000 Has y 5,000 Has de latifoliadas; el manejo y mantenimiento de las plantaciones forestales existentes; Plantación de 10,000 Ha nuevas de café, y transformar 21,000 Ha de pastos degradados en sistemas silvopastoriles.

Con esta información se optó por asumir para cada cambio metas por años. Para el caso de la reforestación se propusieron metas anuales que permitieran en treinta años haber logrado el objetivo.

### 7.2.3 El Plan Nacional Quisqueya Verde

El gobierno se dispone a sembrar 40 millones de árboles en las áreas críticas del País, con una inversión de 50 millones de pesos. Especialmente se dará prioridad a las cuencas Hidrográficas deforestadas. Se está usando la modalidad de financiar plantaciones a través de las instituciones que han estado reforestando en el pasado. Los proyectos agroforestales serán financiados a través del Banco Agrícola, en un marco de acción inmediata que pretende reforestar 100 mil tareas y plantar 10 millones de árboles en su primer año de actividades.

Para la obtención de los fondos el gobierno encamina gestiones con la Comunidad Económica Europea y el Banco de Reconstrucción de Alemania.

### 7.2.4 La Dirección General Forestal

La Dirección General Forestal y la Junta de Desarrollo sostenible de la Cuenca alta del Río Yaque suscribieron un acuerdo de colaboración y de trabajo conjunto para la protección y el incremento del bosque en la Cuenca Alta del río Yaque del Norte. Especialmente en la zona de amortiguamiento del Parque Armando Bermúdez.

Otra actividad de la Institución es la formulación y gestión de fondos para la ejecución del Plan de Desarrollo Integral de la cuenca del rio Camú. Se prevé sembrar 4,800 tareas de bosques familiares. Reforestar 800 tareas de protección y 2,400 tareas de cercos vivos y promover el manejo racional de 8,000 tareas de bosques.

Además ejecuta un Proyecto de reforestación en Sabana Clara. Actualmente se realizan actividades para ampliar este proyecto y se prevé la siembra de un millón de plantas.

### 7.2.5 Inventario Forestal Nacional

Actualmente la Comisión Nacional Técnica Forestal, busca financiamiento para elaborar el Plan Nacional para el Desarrollo del Sector Forestal. Para lograr ésto ha escrito una propuesta a la Agencia para el Desarrollo de Suecia. Esta agencia fue la que acompañó al Plan Sierra para formular su Plan Maestro para el Desarrollo de la Sierra.

También, ha solicitud de la Dirección General Forestal, se cursa una petición similar ante el gobierno Japonés. Se ha decidido que sea la Oficina Nacional de Planificación quien continúe con estas negociaciones y que se coordine con la Subsecretaria de Recursos Naturales en su departamento de inventario.

### 7.2.6 La Apertura para el Manejo Ordenado de los Bosques

La Dirección General Forestal está aprovechando plantaciones realizadas en la Loma de Novillero, lo cual le está permitiendo continuar adquiriendo experiencias en el manejo forestal.

Con la apertura de las autorizaciones para el uso ordenado de los bosques nacionales, en la actualidad cursan en la CONATEF, sesenta solicitudes de permisos para la instalación de aserraderos y sin fines. Según el Director Ejecutivo de la Comisión Nacional Técnica Forestal, cada día llegan nuevas solicitudes.

La madera para estos aprovechamientos proviene del bosque natural y de plantaciones.

### 7.2.7 Programa para el Control de Incendios Forestales

Como algunos de los incendios son provocados por agricultores, abriendo espacio para la agricultura o la ganaderia, se les reclama continuamente que descontenten esta práctica. La CONATEF ha convocado en estos momentos a un grupo de organizaciones para formular un Programa Nacional de Prevención y Control de Incendios Forestales. La Dirección General Forestal también tiene entre sus importantes objetivos desarrollar la estructura fisica y humana capaz de prevenir y afrontar estos siniestros.

### 7.2.8 La Dirección Nacional de Parques

La Dirección Nacional de Parques ha anunciado el inicio del Proyecto Madre de las Aguas, como un proyecto para rescatar los Bosques Nacionales. El Proyecto con una duración de tres años y una inversión en su primera etapa de 11 millones de pesos está destinado a la protección de gran parte

de la zona boscosa incluida en tres Parques Nacionales y dos Reservas Científicas, cubriendo un área de 238,600 tareas de la Cordillera Central.

### *7.2.9 Otras Experiencias en Ejecución*

Hay otras experiencias locales y que son ejecutadas por organizaciones privadas y sin fines de lucro que están llevando a cabo proyectos de reforestaciones y uso de los recursos forestales. Algunas de estas experiencias tienen una amplia base de participación comunitaria como es el caso del proyecto de Zambrana, Cotui auspiciado por Enda Caribe; Floresta, la Asociación para el Desarrollo de San José de Ocoa; Progressio, que trabaja en conservación y realiza plantaciones en las zonas de amortiguamiento de la Reserva de Ebano Verde; el Plan Cordillera y la Fundación Loma Quita Espuela.

## 8. SUGERENCIAS DEL CONSULTOR

Para la realización de este estudio el consultor ha enfrentado algunas limitaciones como son:

La dispersión institucional y la gran cantidad de leyes, normas y disposiciones en el sector forestal que debían ser sujeto de análisis, la sobreposición de roles de las instituciones lo que origina celos interinstitucionales que dificulta la obtención de información, la limitación de conocimientos y experiencias locales sobre el uso ordenado de los recursos forestales, lo que dificulta la visualización de la importancia de este estudio y de los beneficios que puede generar para el País.

La no existencia de una política forestal claramente definida y de una tradición institucional relativa a enmarcar las acciones y programas que se ejecutan dentro de los objetivos de las políticas nacionales, lo cual dificultó el entendimiento del porque de este estudio.

En la última década en la República Dominicana, y en diferentes vertientes, se ha venido trabajando en la definición de los llamados planes de reforma del estado, así como en el diseño de programas nacionales para el desarrollo sectorial. En el sector que nos ocupa tenemos por ejemplo el Plan de Acción Forestal Tropical elaborado en 1987, y que a nuestro entender constituye una propuesta objetiva para establecer claramente las politicas para el manejo del recurso bosque y sus alcances.

Así mismo, en los últimos cinco años con el evidente repunte de la llamada sociedad civil se ha logrado el consenso y el establecimiento de agendas para enfrentar los principales problemas nacionales. Ésto representa reales oportunidades para adoptar políticas e instrumentalizar su ejecución. Tiene así el estado una magnifica oportunidad de realizar las actividades necesarias para encaminar el proceso de desarrollo del País, incluyendo el sector forestal.

En lo relativo a la preparación de capacidades para la elaboración de políticas se requiere que el gobierno identifique las metas desarrollo de cada sector en el corto mediano y largo plazo. Esta identificación permitirá construir los escenarios para entender la situación actual en relación a la situación meta.

La identificación de las limitaciones para avanzar hacia la posición objetivo por parte de los agentes responsables de las estrategias de desarrollo colocaría al país en posición ventajosa para la definición de sus políticas.

El conocimiento de la posición actual deberá fundamentarse en la manifestación de los diferentes sectores de la sociedad, de sus aspiraciones y necesidades. En el caso del sector forestal, incluiría especialmente a los propietarios de terrenos con vocación forestal, a los financiadores, a los usuarios de los productos forestales y a los habitantes de las zonas rurales, entre ellos especialmente a los desempleados y subempleados.

Hay que educar a las personas relacionadas al sector en cuanto a crear el entendimiento de la necesidad de tener una política forestal claramente establecida. Y que a partir de ese establecimiento

de política deberán realizarse los arreglos institucionales y la Formulación de la legislación que sean necesarias, la asignación de recursos y la elaboración de programas y proyectos para el cumplimiento del mandato político.

Un gran aporte de las agencias financiadoras, adicional al rol que vienen desempeñando, es colaborar con los gobiernos nacionales para revisar con técnicos de alto nivel la situación de los recursos forestales nacionales, lo que implicaría realizar una actualización del inventario físico del recurso y así hacer una revisión y adecuación del Plan de Acción Forestal y con esas herramientas asistir al gobierno para el establecimiento de una política forestal clara y concensual que incluya los lineamientos para la aplicación de los programas, proyectos y actividades necesarios para su implementación.

Es necesario que cada agencia sea capaz de identificar como sus logros responden a la política de desarrollo nacional del sector y del País, y que se establezcan los mecanismos claros y simples de monitoreo y evaluación de los logros, que a su vez permitan la redefinición de las políticas y estrategias como parte del proceso de avance hacia las metas propuestas al establecer la política.

Otra recomendación a las agencias internacionales es el acompañamiento al estado y al sector financiero nacional para identificar el tipo de financiamiento que se corresponde con la actividad forestal y sus particularidades, especialmente para lo que se refiere a plazos y tipos de financiamientos.

La posición de liderazgo internacional que ocupa la Organización de las Naciones Unidas y sus agencias, frente a los gobiernos de los países miembros y especialmente por ser el país signatario de diferentes convenios y convenciones internacionales relativas al buen uso de los recursos naturales, representa una excelente oportunidad para que se avance en la profundización del conocimiento del sector forestal del País fruto del análisis de las experiencias pasadas, incluyendo la elaboración de estudios y planes de desarrollo que luego de preparados fueron abandonados.

Consideramos además que un buen uso de este reporte sería analizarlo con las autoridades nacionales en un día de trabajo que permita al gobierno fortalecer al sector con una visión más amplia sobre el aporte de este sector al desarrollo nacional.

Consideramos un reto del gobierno nacional lograr el entendimiento y consenso sobre las posibilidades del uso sostenible de este recurso, como medio de desarrollo socioeconómico garantizando la estabilidad ecológica.

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# ANEXO 1 - SISTEMA NACIONAL DE ÁREAS PROTEGIDAS ACTUALIZADO EN AGOSTO 1997

| *Parques Nacionales* | *Área en Km²* |
|---|---|
| 1. Armando Bermúdez | 766.00 |
| 2. Bahia y Maimón | 21.00 |
| 3. Bahouruco Oriental | 70.00 |
| 4. Banco de la Plata | 3748.00 |
| 5. Cabo Frances Viejo | 1.25 |
| 6. Cuevas de Borbón y de El Pomier | 0.25 |
| 7. Cuevas de las Maravillas | 4.50 |
| 8. Del Este | 430.00 |
| 9. Dunas de las Calderas | 23.40 |
| 10. El Choco | 77.50 |
| 11. Isla Cabritos | 25.00 |
| 12. Isla Catalina | 22.00 |
| 13. Jaragua | 1.374.00 |
| 14. José del Carmen Ramirez | 764.00 |
| 15. La Barbacoa | 22.00 |
| 16. La Caleta | 10.00 |
| 17. La Gran Laguna o Laguna de Perucho | 15.40 |
| 18. Laguna Bávaro o Cuerno y Caletón o Mala Punta | 20.00 |
| 19. Laguna Cabral o Rincón | 240.54 |
| 20. Laguna Redonda y Limón | 107.7 |
| 21. Litoral Norte de Puerto Plata | 0.75 |
| 22. Litoral Sur de Santo Domingo | 10.75 |
| 23. Loma Isable de Torres | 15.00 |
| 24. Los Haitises | 1375.00 |
| 25. Montaña la Humeadora | 420.00 |
| 26. Monte Cristi | 550.00 |
| 27. Nalga de Maco | 278.00 |
| 28 Sierra de Bahoruco | 800.00 |
| 29. Sierra de Neiba | 407.00 |
| 30. Sierra de Martín García | 319.50 |
| 31. Valle Nuevo | 657.00 |
| **Reservas Científicas** | |
| 32. Ébano Verde | 23.1 |
| 33. Loma de Guaconejo | 50.00 |
| 34. Quita Espuela | 72.50 |
| 35. Villa Elisa | 0.08 |
| **Parques Históricos** | |
| 36. La Isabela | 0.05 |
| 37. La Vega Vieja | 5.00 |
| **Reservas de la Biósfera** | |
| 38. Bahia de Samana (Parque Nacional) | |
| 39. Hoya de Enriquillo (Parque Nacional) | |
| **Vías Panorámicas** | |
| 40. El Aceitillar | |
| | |

# ANEXO 2 - LEYES Y DECRETOS DE MAYOR IMPORTANCIA RELACIONADAS AL SECTOR FORESTAL

| | |
|---|---|
| 1919, Ley No. 365 | Creación del Servicio Forestal |
| 1962, Ley No. 5856 | Creación de la Dirección General Forestal |
| 1967, Ley No. 206 | Transferencia de la Dirección General Forestal de la Secretaria de Agricultura a las Fuerzas Armadas |
| 1982, Ley No. 705 | Creación de la Comisión Nacional Técnica Forestal |
| 1985, Ley No. 290 | Incentivos Forestales |
| 1985, Ley No. 291 | Creación Fondo desarrollo fincas energéticas |

# FOREST POLICY IN GRENADA

**by Y. Renard**

## PREAMBLE

The regional study of forest policy in the Caribbean region, of which this report is part, is being conducted at a time when the Government of Grenada is engaged in a comprehensive process of policy review and formulation, with financial support and technical assistance from the UK Department for International Development (DFID). In this context, it has been decided that this study should adopt a slightly different format from the one used for the other countries of the region, for two essential reasons:

- the process of policy formulation currently taking place in Grenada involves detailed surveys and analyses of perceptions and issues, and it would not be fair to the process if preliminary results of that work were used in another context. Data being produced as part of the current process will therefore not be used in the present study;
- the experience currently being gained in Grenada is quite unique in the region, and it is felt that a description of the process being followed could be one of the most useful contributions this study could make to the regional initiative of the FAO, and to other institutions involved in forest policy at the regional and national levels. There will therefore be frequent reference to this work in this report.

## 1. INTRODUCTION

The country of Grenada covers 348 sq. km, with the island of Grenada covering 312 sq. km, while Carriacou and Petit Martinique cover 34 and 2.3 sq. km respectively. Carriacou and Petit Martinique are located north of the main island of Grenada, and are part of the Grenadines archipelago. Beard (1949) identified the following vegetation types:

- the rainforest, dominated by the gommier, *Dacryodes excelsa*, and the Bois Gris, *Licania ternatensis*;
- the montane thicket and the elfin woodland on the higher summits;
- the evergreen and semi-evergreen seasonal forest, which is now found only in few areas, notably on Morne Gazo;
- the deciduous seasonal forest and the cactus scrub in drier areas;
- the littoral woodland;
- the mangrove forest;
- the freshwater marsh, in small areas near Lake Antoine and Grand Etang.

The remaining area of forest, excluding dry scrubs and littoral woodlands, is estimated at 6,967 hectares, with 4,800 hectares in government ownership and 2,167 hectares of private forests. The Grand Etang Forest Reserve, covering 1,547 hectares, was established in 1906, with an initial area of 1,000 hectares, and the addition of 547 hectares in 1963.

A critical function of the forest is the storage and supply of water. There are 71 water catchments in Grenada, and most of the water used for domestic, agricultural and industrial uses comes from surface water. The forest is also important as the habitat for a number of plant and animal species. Hunting is an important activity in Grenada, and much of it occurs in forested areas.

Mangrove forests have traditionally been harvested for the production of tannin and charcoal, and for the collection of posts and stakes used in construction, fencing and farming. A number of non-timber forest products are used in Grenada, particularly for the production of handicraft. Handicraft

production, based largely on the use of bamboo and screw pine, is an important activity for a few communities near forest areas.

The first significant effort at establishing forest plantations on public and private lands began in 1957. In 1996, there were approximately 214 hectares of forest plantations at six different locations within the Grand Etang Forest Reserve, with the dominant species being the blue mahoe, *Hibiscus elatus* (164 hectares), and the Caribbean pine, *Pinus caribaea* (41.5 hectares). Since 1991, the Department has provided new support to the establishment of plantations of mahogany, *Swietenia macrophylla*, on private lands. The Forestry Department maintains a nursery at Grand Etang. It was established in 1991, and produces seedlings (3,000 in 1997) for distribution to farmers and for use in reforestation programmes.

Harvesting and processing of lumber from government plantations is done directly by the Forestry Department, which owns and maintains a processing plant, with an edger and a planer, at Queen's Park in the capital St. George's. Sawing is done with a towable sawmill located in the plantations where the sawing is undertaken. Small scale sawyers harvest trees from private lands. A large proportion of the timber used in Grenada is imported.

A plan for the creation of a system of national parks and protected areas was developed in 1988 (OAS 1988). The Grand Etang Forest Reserve was unofficially declared a National Park in the same year. It has received assistance form the United States Agency for International Development (USAID) for the renovation of the interpretation centre and the construction of a building which is now used as office for the Forestry Department. Other protected areas and sites which contain significant forest resources are Mount St. Catherine, the Levera National Park, Morne Gazo and Annandale Estate.

***Socio-economic profile of Grenada***

| | |
|---|---|
| Population | 98,600 |
| Primary schools | 57 |
| Public secondary schools | 19 |
| Literacy rate | 90% |
| Life expectancy | 71 years |
| Gross Domestic Product | US$296 million |
| GDP per head | US$2,994 |
| Exports | US$21 million |
| Imports | US$147.4 million |
| Public external debt (1995) | US$112.8 million |
| Banana production | 1.87 million tons |
| Banana exports | 1.85 million tons |
| Revenue from banana exports 1992 | US$2.88 million |
| Revenue from banana exports 1994 | US$2.41 million |
| Revenue from banana exports 1996 | US$0.60 million |
| Visitor arrivals | 386,013 |

Source: various statistical data, all figures for 1996 except when indicated otherwise.

## 2. POLICY CONTEXT

Formal forest policies cannot be understood if they are not placed within the broader context in which they operate. Formal policies are determined by a range of factors, including popular perceptions, the culture and structures of decision making, the distribution of power, and other sets of cultural, social and political rules and norms which guide the collective behaviour of people.

In Grenada, the following elements of context must be noted:

- following emancipation and the economic transformations of the mid-19th century, Grenada took a path of development which was rather different from the one followed by the large majority of islands in the Caribbean. In Grenada, because of the nature of the terrain, sugar cane cultivation

did not extend beyond a few of the larger estates, and three sets of factors began to shape the rural economy:

- estate owners became heavily indebted, and began to sell portions of their property to labourers;
- in the 1930s and 40s, the colonial government introduced land settlement schemes which assisted the development of a small peasantry;
- with sugar cane cultivation becoming unprofitable, cocoa replaced it as the mainstay in Grenada's economy at the end of the 19th century, later followed by nutmeg, the production of which grew steadily between the 1910s and the 1950s. Since the mid 1970s, it has become Grenada's main crop (Brizan 1984).

These factors have shaped the rural landscape of Grenada, one where tree crops (nutmeg, coffee, cocoa, coconut) dominate, and play a central part in the strategies and livelihoods of people.

- hunting is an important recreational and subsistence activity, which is part of the cultural traditions and livelihoods of the large majority of rural people in Grenada. As a result, the forest is a relatively familiar environment, which a large number of people know and use, and which provides direct benefits to many. This relationship is important in shaping the perceptions that Grenadians have of their forest and its role.
- another important cultural factor which has influenced the popular perception of forests in Grenada is the development, in the 1970s, of the Rastafarian culture, which advocates a return to nature and a change in lifestyle, away from consumerism and materialism. This culture helped develop a positive perception of the forest, particularly among the youth, and encouraged many in farming communities to develop a caring attitude and behaviour toward the forest and its resources.
- a number of internal and external factors have helped in the development of a perception, in the 1970s and 1980s, that the forest of Grenada had important potentials for timber production, and that the forest (and consequently the agency responsible for its management) should generate revenue and contribute to economic development through the production of goods. A number of external assistance programmes, as well the decisions of the People's Revolutionary Government (PRG), which was in power between 1979 and 1983, to replace the Forestry Department by a self-financing statutory body and to conduct an ambitious programme of plantations, contributed to strengthen this view. Current perceptions and policies continue to be shaped, to a significant extent, by this approach.

## 3. CURRENT FORESTRY POLICIES

The main legislative instrument governing the management of Grenada's forests is the Forest, Soil and Water Conservation (Amendment) Ordinance of 1984. This piece of legislation contains an explicit statement of policy, which reads as follows. The Forest Policy of Grenada is –

| | |
|---|---|
| Protection | (a) To effect the permanent preservation of a tree cover (on such land as required) for the prevention of erosion and the protection of water supplies |
| | (b) To effect the permanent preservation of forest reserves (of such areas of land as may be required) to ensure the continuous supply of forest products |
| Conservation and silvicultural practices | (c) To maintain the level of forest growing stock, to ensure sound silvicultural practices are employed and to direct harvesting such that this growing stock is not reduced |
| Protection of habitats | (d) To protect such areas as may be required to provide a natural and undisturbed habitat for the flora and fauna of Grenada |
| Extension | (e) To encourage and assist owners and managers of forests, woodlands and plantations whether they be private or Crown lands |
| Recreation | (f) To create where necessary areas within the forest to satisfy urban man's needs for recreation within a peaceful natural environment |
| Forest resource utilization | (g) To encourage the fullest development of the productive forests |
| Wood processing industries | (h) To encourage the establishment of appropriate forest industries |

| | |
|---|---|
| | (i) To protect the consumer by ensuring well manufactured forest products are supplied in conformity with market demand |
| Education and training | (j) To extend educational and training opportunities at the professional, technical and vocational level to Forestry personnel |
| Research | (k) To initiate and conduct where possible all research necessary into Forestry to ensure fulfilment of this Forest Policy |

The policy contained in the Ordinance of 1984 was reviewed in 1987 (McHenry and Gane 1988).

In 1991, the Government of Grenada received technical assistance from the FAO for the formulation of a National Forestry Action Plan, under the auspices of the Tropical Forestry Action Programme (TFAP). The TFAP recommended a new policy, indicating that it would have to give stronger emphasis to:

- the paramount importance of a sustained clean water supply as the most valuable economic product of the mountain forest.
- the importance of biodiversity and the conservation of natural resources wherever they remain. Such resources must only be harvested in a sustainable fashion.
- the need to define those areas of wood use which may sensibly be supplied from locally grown trees, and to indicate how and where these should be grown in a sustainable way.
- the need to better define the role of the Forestry Department, and of other land-administering Government agencies.
- a much stronger place for public input and activity in any forestry programme (Purey-Cust 1992b).

The proposed revised policy then identified eleven major objectives:

(i) that all forests will be managed in a sustainable manner, so that all the attributes and values of the resource are conserved for future generations.

(ii) that there should be regard for the safety of the natural flora and fauna of Grenada, and its rigid protection in those areas set aside for the purpose.

(iii) (iii)that the forests of the mountains and upper catchments will be left in a natural state for the production of water, with the conservation of biodiversity and the human enjoyment of natural surroundings being associated values.

(iv) (iv)that all land use planning be based on watersheds or groups of watersheds.

(v) the production of wood and non-wood resources from the forest and their processing is best left in the private sector, leaving the Forestry Department free to exercise its regulatory, extension and planning role.

(vi) (vi)the priority area for reforestation is in the lowlands, on private and model farm land unsuited to agriculture, on better soils handy to consumers and to roads.

(vii) (vii)the species chosen for reforestation will be carefully selected to fulfil specific needs and those niche markets where Grenadian manufacturers have a market advantage.

(viii) (viii)the prime role of the state in reforestation and wood supply will be as a supplier of extension services and seedlings, field trials of species and techniques, and demonstration.

(ix) all forested lands in State tenure will be managed in accordance with written management plans. These plans will define management objectives, describe the nature of the forest land and the resource within it, and where there is appropriate regulation of the use of the resource.

(x) there will be the widest possible consultation before forest extension strategies are set in place to encourage tree planting on private land, and before management plans are formulated for State lands.

(xi) the public at all levels from decision-makers to school children will be continuously educated in the value of forests as homes for wildlife and as an endless source of sustainable resources, free if used sensibly but very costly to repair if damaged (Purey-Cust 1992b).

There is no legal provision for the registration and licensing of hunters and their firearms. There is a provision for a close season for hunting, with the same dates applying to all wildlife. Associations of hunters play the lead role in declaring and publicising the close season.

Other national policies which have relevance to forest management are the following:

- the National Water and Sewage Authority (NAWASA) has issued a policy statement on the management and distribution of water;
- in 1992, the Government of Grenada formulated a land development policy (GOG 1992), which was prepared by a small multi-disciplinary team led by the Land Use Officer within the Ministry of Agriculture. This policy has not been formally adopted by the Ministry;
- in 1997, the Ministry of Agriculture developed a draft agricultural policy. This policy has not been formally adopted by the Government;
- there is a policy for the tourism sector, which makes no specific mention of linkages with the forestry sector. In terms of the relationship between tourism and environmental management, the policy indicates that "new tourism enterprises must be located, designed and serviced in a manner consistent with the objectives of environmental and energy conservation and the protection of Grenada's natural beauty and resources, as outlined within the National Environmental Action Plan" (GOG n.d.);
- in 1993, the Government of Grenada drafted a National Environmental Action Plan (NEAP), which has not been formally approved by Cabinet. The preparation of the plan followed the following steps:
  - identification of the priorities, recommendations and proposals already contained in other national policy and programme documents;
  - review of these recommendations with representatives of governmental agencies, non-governmental organizations and private sector bodies;
  - drafting of the plan, following guidelines provided by the World Bank;
  - consultation of government officials;
  - preparation of second draft;
- for the islands of Carriacou and Petit Martinique, the Ministry of Planning, with support from the United Nations Development Programme (UNDP), has recently completed the formulation of an Integrated Physical Development and Environmental Management Plan.

Policy guidance in the forestry sector is also provided by the corporate plans developed under the auspices of the Ministry of Finance as part of the national budgeting process. In the Ministry of Agriculture's current corporate plan, the mission of the Forestry Department, as stated in the recurrent expenditure estimates of 1997, is "to develop a forestry sector which will ensure an ecological balance for sustainability and conservation of forest resources". The objectives stated are:

- "to manage watersheds for the production of quantity and quality water for domestic, agricultural and industrial uses
- to manage wildlife for food production and protection of fauna
- to manage and protect our indigenous species of Flora and Fauna
- to manage the forests for the production of timber on a sustainable basis
- to provide material to meet the needs of those dependant on the forest (handicraft)
- to reforest idle government lands in Grenada and Carriacou
- to educate our people to conserve our forest and environment
- to manage for the protection of indigenous species
- to provide support for agroforestry activities and programmes
- to manage for the production of minor forest products
- to manage for the control of the mealy bug in the forest
- to plan and implement forestry projects that complement national development"

The current status of formal policy making with respect to forest resources can therefore be summarized as follows:

| *Policy requirement* | *Current status* |
|---|---|
| Provision of overall vision of and goals for forest management, within broader development context | Policy contained in 1984 Ordinance. Two revisions proposed since, but not accepted. Policy review ongoing. No national development policy. Environmental policy guidance provided by the draft National Environmental Action Plan. |
| Institutional coordination and collaboration | No policy, no formal mechanisms established. |
| Sectoral policy: water management | NAWASA policy. |
| Sectoral policy: biodiversity management | No policy. |
| Sectoral policy: hunting and game management | No policy. No system of or provision for licensing of hunters. Close season for hunting, same dates for all species. |
| Sectoral policy: timber production | General policy guidance provided by 1984 Ordinance. Lack of specific regulations and code of practice. No provision for the licensing of chain saws and saw mills. |
| Sectoral policy: tourism | Tourism policy exists, provides very limited guidance on relationship with forestry sector. |
| Management of forest resources on private lands | General policy guidance provided by 1984 Ordinance. Lack of specific regulations and code of practice |
| Information acquisition and dissemination | No policy. |
| Public participation and decentralization | No policy. Provisions included in the draft policy revisions prepared by FAO (McHenry and Gane 1988, Thomas 1992). |

# 4. EMERGING AND CURRENT ISSUES AND PROBLEMS

## Absence of broad policy for national development

An important concern of institutions involved in development and natural resource management is that there is no overall policy framework to guide national development in Grenada. Participants in the current forest policy development process have recognized this gap, and are concerned that a forest policy cannot be fully effective if it does not find its place within a broader context, with national development and resource management goals and strategies.

## Need for a review of forest policy

The need for a review of forest policy has been recognized by the Government, and this is the reason why the formulation of a new policy has been included in the important collaborative project undertaken by the Government of Grenada and the UK Department for International Development (DFID).

One must however observe that Grenada has had the benefit of a clear forest policy statement since the amendment of the Forest, Soil and Water Conservation Ordinance in 1984, and that extensive recommendations have been provided on two occasions since (McHenry and Gane 1988, Purey-Cust 1992b). Interviews with staff of the Forestry Department indicate that the inadequacy of current or previously proposed policy statements is found less in their contents than in the process which led to their development. Experience has shown that many of the recommendations formulated under the TFAP process (Thomas 1992) have not been implemented, not necessarily because they were not

suited to the needs, but because key actors did not feel committed to these conclusions, since they had not been adequately involved in formulating them.

Two other observations are made by people involved in the current process of policy review:

- previous policy statements, however comprehensive and pertinent they may have been, have failed to provide strategic directions, and, as such, to offer the guidance needed by the managers of the forest;
- to make the policies effective, there is also a need for translating them into specific plans and programmes.

## Deficiencies of forestry legislation

The deficiencies of the existing legislation have been documented (Thomas 1992). One of the issues mentioned in recent times is the fact that there is no provision for the licensing and regulation of chain saw operators and saw millers.

## Insufficient information base

Forest managers in Grenada lament the fact that there is insufficient scientific information available to guide management activities. They see in particular the need for an inventory of the fauna and flora, and the establishment of a data base. They also see the need for accurate and precise information to guide watershed management (land use, erosion rates, drainage, etc.).

## Water conservation and maintenance of water supply

A related and important issue is the absence of a formal mechanism for institutional collaboration between the Forestry Department and the National Water and Sewage Authority (NAWASA). Both parties feel that their convergent interests would be better served by closer collaboration, and by the provision of systems and instruments which would allow both institutions to participate in all decisions which are relevant to their missions. They also see the need for a more integrated approach to watershed management, and for the preparation and implementation of management plans for all critical watersheds.

## Soil conservation

Soil erosion is a concern in all parts of Grenada, but it takes a specially acute form in the island of Carriacou, because of over-grazing, and because of the dry climate. In that island, there is the tradition of the "let-go" season, when animals are freed to allow them to find food in the dry season. There is now a practice of doing this all year-round, and this is considered to be very detrimental to the vegetation.

## Need for appropriate land use on private lands

Forested areas in Grenada are very limited, and the management of water, soil and biological resources cannot be effective without effective management of these resources on private lands.

The Forestry Department, the Extension Division in the Ministry of Agriculture and other actors see the need for a code of practice which would guide the use of land and other resources within important watershed areas.

From consultations held recently in Carriacou and Petit Martinique, the view was also expressed that there should be policies and legal instruments which would allow the state to intervene when private lands are not adequately managed, especially because of absentee ownership.

## Management and development of ecotourism

There are a number of issues relating to the management of ecotourism activities and the use of the forest resource in the development of these activities. This sector is currently being studied, as part of the forest policy development process. Issues to be considered include:

- the control of the impact of visitor use on the resource;
- the participation of local communities in the design and management of tourism facilities;
- the distribution of benefits from ecotourism development to local communities;
- the definition and enforcement of standards of quality and use for all ecotourism facilities;
- the generation of revenue from tourism uses (Geoghegan 1995);
- the involvement and awareness of the population, to ensure that facilities are not perceived as mere tourist attractions, but are appreciated and used by all Grenadians.

## Mangrove management

The Forestry Department and the National Parks Unit in the Ministry of Tourism are concerned about the management of mangroves. Key issues are defined as follows:

- lack of awareness on the part of private developers;
- lack of awareness on the part of governmental agencies;
- impact of charcoal production and timber harvesting.

## The role of the Forestry Department in timber harvesting and marketing

This issue has been considered on several occasions in the past, especially within the context of the Tropical Forestry Action Plan, where it was concluded that the Forestry Department should withdraw from logging, saw milling and processing, and that the plant currently located at Queen's Park should be closed down. The issue is currently under review within the framework of the forest policy development process.

## Jurisdiction over national parks and other protected areas

The issue of the institutional responsibility over the management of parks and protected areas is one which has been of concern to institutions in Grenada for quite some time. A National Parks Unit was first created in September 1986 within the Forestry Department of the Ministry of Agriculture. At the time, the only protected area, the Grand Etang National Park, had not been legally established, and there was no legislation that dealt specifically with protected areas. Grand Etang was therefore managed as a Forest Reserve under the provisions of the Forest, Soil and Water Conservation Ordinance.

In 1990, as one of the recommendations of the planning exercise undertaken by the Government of Grenada and the Organization of American States between 1985 and 1989 (OAS 1988), a National Parks and Protected Areas Act was passed, and the responsibility for the management of protected areas was transferred in the following year to the Ministry of Tourism, while the responsibility for marine protected areas remained within the Department of Fisheries, under the provisions of the Fisheries Act. Since then, there have been several attempts to return the authority for protected area management to the Forestry Department, this measure was included in the recommendations of the

Tropical Forestry Action Programme (Thomas 1992), and the Cabinet of Ministers indeed made a decision to that effect in September 1993. The decision has however not been implemented.

Recommendations have also been made for the creation of a statutory body, which would be called the National Parks and Beaches Commission, and which would oversee the development and management of parks and protected areas (EEC and GOG 1993). Concerns expressed by the proponents of a return of the responsibility to the Ministry of Agriculture include the potential for duplication of efforts, the limited management capacity of the National Parks Unit in the Ministry of Tourism, and the need to focus activities on priority issues of natural resource management.

There are arguments for and against the various options, and it is therefore hoped that the institutions concerned will be able to conduct a rigorous evaluation of these options, and to develop a consensus on the preferred institutional arrangements for the appropriate management of the parks and protected areas of Grenada.

## The jurisdiction over forested areas owned by the State

Another matter of jurisdiction which is of concern to the Forestry Department, and which deserves to be addressed, is that of the authority over the management of the public forests (Crown Lands) which have not been declared as Forest Reserves under the Forest, Soil and Water Conservation (Amendment) Ordinance of 1984. According to the Ordinance, the Forestry Department is responsible for the management of all vegetation on Crown Lands. But the fact that significant portions of the state forest have not been declared as Forest Reserves reduces the authority of the Forestry Department over these areas considerably. The main locations concerned are Mount St. Catherine, Annandale and Morne Gazo.

Indications are that the issue will be addressed soon, as the Government has requested the demarcation of these three areas, for the purpose of declaring them as Forest Reserves.

## Jurisdiction, policies and programmes for wildlife and game conservation and management

There are a number of issues which relate to the management and conservation of wildlife, and to the control and management of hunting.

The Birds and Other Wild Life (Protection of) Ordinance is considered ineffective as an instrument of wildlife protection and management (Thomas 1992). It does not provide for the establishment of wildlife reserves, and does not identify the agency responsible for the enforcement of the Ordinance. As a result, there are no Wildlife Officers in the country, and there is no agency vested with the authority for wildlife conservation and management.

The provision for a close season for hunting is considered inadequate, because the same dates apply to all species. There is a need for a review of the requirements, and for the formulation of a more comprehensive management framework.

Another need which has been identified is for a greater level of participation and organization within the hunting community.

With respect to wildlife management, the Forestry Department also notes that there is no expertise in the country, and that there is therefore need for technicians and managers to be trained in wildlife conservation and management.

Several organizations have also expressed concerns over the destruction of wildlife habitats, particularly those of the endemic Grenada dove at Mount Hartman.

## The transformation of the Forestry Department

With all the questions which are currently arising in the forestry sector in Grenada, and with the changes which could occur as a result of the current process of policy formulation, the Forestry Department may have to undertake changes with respect to its policies, structure, culture and operations. Over the past few months, in the conduct of the policy review, the leadership of the Department has demonstrated its sharp understanding of the issues, and its appreciation of the need for change. The challenge will be to manage that change effectively, in a manner which utilizes the talent and resources available while dealing with problems and issues fully and adequately. In order to meet this challenge, the Department will need the understanding and support of a number of institutions, notably the Ministry of Finance and the Ministry of Agriculture.

## Development of the furniture industry

From a survey of furniture makers carried out by the Forestry Department, six issues were identified as obstacles and constraints to the development of the sector. They were as follows:

- the availability of local lumber, particularly mahogany;
- the fact that small scale producers, who dominate the industry, do not have the capital needed to expand;
- the poor quality of wood obtained from local sources;
- the absence of adequate wood drying facilities;
- the need for training among furniture makers;
- the lack of cooperation among furniture makers, and between the government and the furniture sector (Frederick 1996).

## Low status of forestry officers within the public service

Members of the staff of the Forestry Department note with concern the fact that their conditions of employment are not attractive, and that forest officers receive lower salaries than other employees of the Ministry of Agriculture with identical qualifications and levels of experience. This fact has a demobilizing and demoralizing impact on forestry personnel.

## Absence of forest management issues from public debates

Grenada reveals an interesting contradiction between the level of awareness of environmental issues, as demonstrated by recent surveys carried out by the Forestry Department, and the fact that these issues are not aired publicly. A rapid review of selected newspapers suggests that forestry and related issues are not covered in the media, and observers indicate that there is no independent voice speaking credibly to alert public opinion on these problems and to encourage action by the political leadership.

## Impact of the pink mealy bug

The pink mealy bug, *Maconellicoccus hirsutus*, is a pest which was first reported in Grenada in 1994. It has greatly affected forest areas, notably the plantations of blue mahoe, *Hibiscus elatus*, but the problem is now less acute, as the comprehensive programme of biological control which was launched in 1996 appears to yield results.

## Impact of public sector projects

The Forestry Department and non-governmental organizations are concerned that public sector projects (electrification, road construction) taking place in or near forested areas are undertaken without consultation with the forestry administration, and can have negative impacts on the forest and tree resources. The issue, it is felt, is one of coordination and communication among governmental agencies and statutory boards, to ensure that the Forestry Department is adequately consulted before projects which may impact negatively on the forest resource are designed and implemented.

# 5. PROCESSES AND MECHANISMS OF POLICY FORMATION

As noted in the preamble to this report, a feature of the forestry sector of Grenada at this time is that the country is involved in an ambitious and broad-based exercise aimed at developing a new forest policy, as well as a new strategic plan and business plan for its Forestry Department.

The process is led by the Forestry Department, with support from the Grenada Forest Management Project, funded by the UK Department for International Development (DFID) and the Government of Grenada. The project provides the Forestry Department with a forestry advisor for a period of three years, and with other human, financial and technical resources. Supporting the policy development process was accepted as one of the project's activities after an early request from the Ministry of Agriculture.

The main characteristics of this process are as follows:

- it is concerned with the development of a forest policy for the nation, and not exclusively for the Forestry Department. It appreciates that it must provide guidance for the management of the resource as well as for the goods and services derived from it;
- it is informed by research and analysis. A number of activities are being undertaken to ensure that issues are identified and interpreted, and that the necessary data is made available to participants in the process;
- it is participatory. Mechanisms have been put in place to ensure that all key stakeholders are involved in the process, that their views and opinions are heard, that the results of research are interpreted and distributed to them, and that they participate in the formulation of the policy;
- it is concerned with both the content and the process of policy-making, and it is focused on implementation, recognizing that change cannot happen if the process is not adequate.

The first activity in the forestry policy development process was a visioning workshop, which was held in May 1997 among the staff of the Forestry Department, to examine the current status of forestry, to share information on key issues and priorities, and to develop a consensus on the need for the policy process (Grenada Forest Management Project 1997).

On the basis of this agreement, the process being followed can be succinctly presented as follows:

- participatory research, with policy studies on a wide range of topics: private tree planting; watershed management; non-timber forest products; options for timber harvesting and processing; ecotourism; environmental education; cultural aspects; international conventions; wildlife management; mangrove management; and institutional linkages. For each of these topics, someone has been assigned to conduct research and develop a paper focusing on issues and priorities;
- communication and consultation: a number of activities are being undertaken, including community consultations (12 meetings in various communities), the preparation of a questionnaire which was published in local newspapers and distributed to schools and other institutions, the hosting of radio phone-in programmes, the organization of lessons with selected primary schools, and the publication of articles in the press.

The overall process is supported by a Forest Policy Development Committee made of representatives of governmental agencies, non-governmental organizations and forest resource users.

In July 1998, the project will convene a one-week workshop to build a consensus and to develop the first elements of the policy, with respect to:

- a vision of development, and of the place of the forestry sector within that vision;
- the objectives of forest conservation, management and use;
- the principles and processes which should guide forest policy making and implementation.

In order to select the participants in that workshop, the Forest Policy Development Committee carried out an exercise to identify all possible stakeholder groups, and to ensure that each would be represented in the deliberations. It did this by listing all the functions of the forest, in terms of goods and services, and identifying the groups interested in each of these.

Following the workshop, a draft policy document will be prepared and submitted to the Cabinet of Ministers, and the Forestry Department will develop a strategic plan and a business plan for the implementation of the policy.

## 6. POTENTIALS OF THE SECTOR

An analysis of the potential of the forestry sector can best be done by looking at the various functions of the resource, and determining, for each of these functions, the main constraints and opportunities.

| *Function* | *Potential* |
|---|---|
| *watershed conservation* | This is the most important function of the forest, and it should receive priority attention in all policies and programmes. The limited size of forested areas makes this objective particularly crucial. |
| *tourism development* | The forest can play a useful part in the improvement and diversification of the tourism product of Grenada. |
| *recreation* | The forest means much to Grenadians, and it must therefore be managed in a manner which guarantees the continuation of recreational uses, as long as they remain compatible with other management objectives. |
| *biodiversity conservation* | Because of the small size of remaining natural habitats, the conservation of wildlife is particularly complex, and requires sophisticated management regimes and arrangements. |
| *timber production* | The potential on public lands appears limited. On the other hand, there appear to be important possibilities for the expansion of plantations on private lands, and for improved linkages with the furniture sector. |
| *non-timber forest products* | This sector has a significant potential, especially in terms of linkages with the tourism sector. |

## 7. INSTITUTIONAL ARRANGEMENTS

The main institution responsible for forest management in Grenada is the Forestry Department of the Ministry of Agriculture. It currently has 86 members of staff. It is headed by a Chief Forest Officer, and is organized along three units (positions indicated are those which are currently filled, excluding field workers):

- Forest Operations, with one Senior Forester, two Forest Guards, and three Foremen;
- Production, which is managed directly by the Chief Forest Officer, with one Foreman and one Sales Clerk;
- Agroforestry and Extension, with one Senior Forester, two Junior Foresters and one Forest Guard.

In addition, there are one Junior Forester and four Forest Guards who report directly to the Ministry of Carriacou and Petit Martinique Affairs. There are also two Senior Foresters attached to special projects.

The Department's budget for fiscal year 1998 shows a projected expenditure of EC$816,697 (US$1.00 = EC$2.7), broken down as follows:

| | |
|---|---|
| * permanent staff salaries | 254,064 |
| * temporary staff salaries | 420,000 |
| * supplies | 100,500 |
| * overheads | 11,313 |
| * other | 100 |

The figures for capital expenditure indicate the following:

| | |
|---|---|
| * equipment (chain saws, office) | 15,050 |
| * Forest Management Project, external aid | 500,000 |
| * Forest Management Project, local revenue | 208,000 |
| * Morne Gazo development, local revenue | 125,000 |

The National Parks Unit of the Ministry of Tourism is responsible for the management of parks and protected areas. It currently has a staff of 41 people. The agency responsible for water management is the National Water and Sewage Authority (NAWASA).

The only non-governmental organization dedicated exclusively to environmental issues in Friends of the Earth - Grenada. It was formed in 1991 and formally registered in 1992. It has a membership of approximately 50 individuals, and it is affiliated to Friends of the Earth - International. It has a broad mandate of advocacy, education and action in favour of environmental management. It conducts a school programme focusing on trees and reforestation.

Two other non-governmental organizations with a broad record of accomplishments in social and economic development, namely the Agency for Rural Transformation (ART) and the Grenada Community Development Agency (GRENCODA) have an interest in environmental issues, and have been involved in projects relevant to forestry (tree planting, farmer mobilization, etc.). Both organizations are members of the Committee responsible for the current process of forest policy review and formulation.

There is also an Inter-Agency Group of Development Organizations which brings together most non-governmental organizations in the country and provides them with a forum for information exchange, advocacy and collective action on selected issues.

One community-based organization involved in forest management is the St. Andrew Development Organization (SADO), which has led a participatory process to identify natural and cultural sites of importance within the community. As a result, the group has developed a trail and recreational facility at the Royal Mt. Carmel Fall, which were officially opened in 1995, and which are now managed by a local committee (Mark 1995).

The National Sustainable Development Council, which operates under the auspices of the Ministry of Planning, with support from the Capacity 21 project of the United Nations Development Programme (UNDP), is a new advisory body aimed at the formulation of policies and programmes for sustainable development. It is comprised of representatives of governmental agencies, non-governmental organizations and private sector bodies.

## 8. POLICY STUDIES

In 1987, a review of forest policy in the eastern Caribbean was carried out by the FAO, which led to a regional workshop on forestry, wildlife and national parks policy and legislation, which was held in St. Lucia (FAO 1987). Consequently, the FAO developed a report to the Government of Grenada (McHenry and Gane 1988) which produced a draft policy. The policy was based on "imperatives", i.e.

statements of objectives, and there were six imperatives in the draft document, namely water, soil, heritage, output (forest products), participation and public awareness. The other sections of the policy document were organized as follows:

- obstacles to development, namely: the inadequate basis for resource management; the misuse of the land in the watersheds; the under utilization of the land, and related low productivity, and the national economic capacity;
- strategic objectives (secure the resource base, spread catchment control, plan for productivity; and maximum mutual assistance);
- constraints, identified as finance, land, operational capability and information;
- strategic programme, itself based on fifteen elements:
  - select, establish and manage forest reserves;
  - designate protected forests;
  - begin a watershed protection programme;
  - set up a forestry fund;
  - introduce a private forestry incentive scheme;
  - initiate research and demonstration;
  - develop harvesting methods;
  - designate and safeguard heritage sites;
  - establish national parks;
  - safeguard threatened and endangered species;
  - build institutional capability;
  - improve consultation and coordination;
  - prepare a sectoral development plan;
  - initiate a public education programme;
  - share expertise and service with other OECS (Organization of Eastern Caribbean States) countries.

This policy document, which is almost identical to the one prepared by the same consultants for other islands in the eastern Caribbean, was not used by policy-makers in Grenada.

In 1989 and 1990, Island Resources Foundation, acting on behalf of the Caribbean Conservation Association, conducted a detailed review of environmental issues, policies and programmes, which led to the publication of a comprehensive Country Environmental Profile (CCA 1991). This study reviewed in some detail the policies, legal instruments and institutional arrangements in all relevant sectors, including forestry, wildlife and water management. It also provided specific policy recommendations in these sectors.

The purpose of the Country Environmental Profile was to meet the requirements of the United States Agency for International Development (AID), which stipulated that all countries that were recipient of its support should carry out such a study. For the Caribbean Conservation Association, Island Resources Foundation and the Government of Grenada, the study provided an opportunity to review the environmental sector and to define priorities for action.

In 1992, the Tropical Forestry Action Programme conducted a review of the forest policy (Purey-Cust 1992b) and offered a specific analysis of the deficiencies of the two main instruments, namely the Forest, Soil and Water Conservation Ordinance, and the Birds and Other Wild Life (Protection of) Ordinance (Pollard 1992, Purey-Cust 1992a).

## 9. CONCLUSION

As Grenada proceeds with the review and development of its forest policy, it would be extremely useful to the country and the region if this experience could be properly documented and analysed, as it offers a unique case study of a participatory approach to policy making.

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# FORESTRY POLICY OF GUADELOUPE

**by Y. Renard**

## 1. INTRODUCTION

## The Forestry sector

### *Institutions*

To facilitate an understanding of the forestry sector, it is necessary to begin this report with a brief presentation of the complex institutional landscape which exists in Guadeloupe.

The main institutional actors involved in forestry issues in the public sector are:

- the Office National des Forêts (ONF), the French national forest agency, which is constituted as a public company. It was created in 1964;
- the Conseil Régional: the responsibility of this elected assembly and its executive are to provide the overall planning and management framework for the island's economic development;
- the Conseil Général: this elected assembly and its executive manage the properties and assume the responsibilities of the Département, which is responsible primarily for social infrastructure and services;
- the municipalities: headed by elected mayors and municipal councils, the municipalities are responsible for local level social services and for the formulation and implementation of land use plans.

Another actor is the Conservatoire National de l'Espace Littoral et des Rivages Lacustres, a governmental agency responsible for coastal management. The Office National des Forêts is the agent of the Conservatoire for Guadeloupe, and is responsible, on its behalf, for research, and for the identification of sites for acquisition. It has also been vested with the responsibility for the management of two of its sites, Petite Terre and the Grand Ilet in the Saintes archipelago.

Forestry research is conducted in partnership between the Office National des Forêts, the Institut National de la Recherche Agronomique (INRA) and the Parc National de la Guadeloupe, but the INRA has recently reduced its involvement in forestry research. This loss has been compensated by the establishment, by the Office National des Forêts, in French Guiana, of a Section Technique Inter-Régionale (STIR), a research and technical assistance institution serving the three French Départements of Guadeloupe, Guyane and Martinique, and involved in regional programmes. The main directions of forestry research are:

- the management of mahogany plantations: over the past few years, research work has focused primarily on an identification and analysis of the reasons for the poor performance of mahogany plantations. With simple tests, it has determined that inappropriate soils and low fertility were the main factors at play. The STIR is now embarking on a study of the genetic composition of the mahogany population in Guadeloupe, to determine whether the low diversity and unsuitability of the genetic stock introduced could be factors in the poor performance of the trees;
- the silviculture of local species: with the difficulties faced by mahogany plantations, the institutions have seen the need for more focus on the use and management of local timber species;
- a study of the genetic diversity and dispersion of the white cedar, *Tabebuia pallida*, and the selection and testing of superior genetic material for later dissemination in the region.

The university of the French West Indies (Université des Antilles et de la Guyane) is also an important actor, providing expertise to a number of forest management activities and institutions, and conducting important research in a number of areas. For example, it recently coordinated the preparation of the ecological map of Guadeloupe (Rousteau n.d.).

The most active non-governmental organization at this time is the Association pour l'Etude des Vertébrés des Petites Antilles (AEVA), which is involved in research and public education activities.

## The resource

Forested areas in Guadeloupe cover approximately 65,500 hectares, or 35 percent of the island's territory, with approximately 26,700 hectares in private ownership and 38,800 hectares in public ownership, distributed as follows:

- forêt départementalo-domaniale (state forest), 27,754 hectares;
- forêt domaniale du littoral (coastal state forest), 1,496 hectares. These are properties of the state which were vested in the forest service for management (368 hectares in 1975, 471 hectares in 1976, and 663 hectares in 1980);
- forêt départementale (areas acquired by the Conseil Général, owned by the Département, and managed by the Office National des Forêts), covering 1,394 hectares and divided in a number of small areas;
- mangroves, 8,000 hectares, owned by the state and managed by the Office National des Forêts.

There are four main natural forest formations:

- mangroves, located principally in the Grand and Petit Cul de Sac Marin, with smaller areas along the coasts of Grande Terre and Marie Galante;
- xerophytic forests, in lower and drier areas;
- rainforests, located on the slopes of the mountainous Basse Terre;
- montane forests, located near the Soufriere and other summits above 1,000 metres.

Guadeloupe's forests are home to important biological resources. Its fauna includes the agouti, *Dasyprocta noblei*, the endemic *Procyon minor*, and three endemic species of birds.

## Resource use and management

Guadeloupe's forest is critical for water supply, with virtually all catchments located within the boundaries of the public forest. Catchments in the mountainous and forested Basse Terre area supply the much drier Grande Terre, as well as the archipelago of Les Saintes.

The main forms of traditional uses of timber and other forest resources include the collection of medicinal plants, charcoal production on private lands (particularly on the island of Marie Galante) and in mangroves, and the collection of stakes and other materials.

Timber production occurs on both public and private lands. The first plantation of mahogany (*Swietenia macrophylla*) was established in 1947, with a large-scale initiative aimed at establishing mahogany plantations on lands which had been deforested and devoted to agricultural production during the second world war. Plantations were then progressively extended to forested areas, to replace the natural vegetation. The construction of forest roads began in 1962. By 1979, at the start of the first management plan, there were approximately 3,000 hectares of plantations. During the period of the first management plan (1979-1990), 600 hectares of plantations (560 in mahogany, and 40 in Podocarpus salicifolius) were established. In recent years, the annual cost of establishing and managing these plantations was estimated to be between FF 75,000 (approximately US$14,000) and FF 90,000.00 (approximately US$16,000.00) per hectare. By 1991, there were 68 km of forest roads in Guadeloupe.

Mahogany plantations have generally performed very poorly. The two main factors cited are:

- the impact of two insect predators, one coleopter, *Hexacolus guyanensis*, and one lepidopteran, *Hipsipyla grandella*;
- the fact that mahogany trees perform poorly, stopping growth after 15 years, in soils that contain too much iron, as is the case in most of the areas where plantations were established.

Another factor affecting mahogany plantations is an ant, Acromyrmex octospinosa, which causes significant damage to sugar cane plantations. Over the past few years, following the damage caused by Hurricane Hugo in 1989, the ant, which was confined to agricultural areas, has begun to invade forests where the vegetation cover is sparse, including the mahogany plantations, causing much damage to the trees.

Scientists at the Institut National de la Recherche Agronomique (INRA) in Guadeloupe also cite the fact that all mahogany plantations in Guadeloupe were established from an extremely small genetic pool, indicating that this factor may be responsible, in part, for the poor performance of the plantations.

On private lands, the only significant plantations are those which were established by the owners of large sugar plantations in the Grande Terre area in the 1960s.

Timber production figures between 1979 and 1996 for the Forêt départementalo-domaniale are as follows (volumes in $m^3$):

| *Year* | *1979* | *1980* | *1981* | *1982* | *1983* | *1984* | *1985* | *1986* | *1987* |
|---|---|---|---|---|---|---|---|---|---|
| Volume | 1864 | 281 | 2885 | 422 | 1750 | 1244 | 640 | 1560 | 1696 |

| *Year* | *1988* | *1989* | *1990* | *1991* | *1992* | *1993* | *1994* | *1995* | *1996* |
|---|---|---|---|---|---|---|---|---|---|
| Volume | 523 | 1289 | 646 | 96 | 458 | 582 | 281 | 652 | 501 |

In 1996, this production represented a value of FF 168,339 (approximately US$30,000). At present there is only one mill operating in Guadeloupe.

Almost all lumber used in Guadeloupe is imported. In 1991, volumes of wood imports (excluding furniture and prefabricated houses) amounted to 160,000$m^3$.

Forest areas are important assets in the development of the tourism sector, but it is impossible to quantify their contribution. There are over 300 km of established and managed trails, which are used extensively by locals and visitors. Other forms of recreation by local residents include bathing in rivers and family outings. This form of use increased substantially in the 1970s with the construction of visitor facilities (picnic areas, trails, lookout sites) by the Office National des Forêts.

Hunting is an important recreational activity in Guadeloupe. The Office National des Forêts is responsible for issuing licenses, and generates a small amount of revenue from this activity. 1,500 licenses were sold to private individuals in 1996, allowing them to hunt in public forests. In addition, there are another 1,000 registered hunters. Unofficial estimates put the total number of hunters at 5,000.There exists an organization called Fédération Départementale des Chasseurs, which brings together all associations of hunters (approximately eight active at this time). It is, however, estimated that less than 10 percent of the total number of hunters belong to an association.

The first modern institutional and legal instruments for the management of the public forest were put in place in 1922 with the introduction of a forestry law (Code Forestier), which came into force in 1924, at which time the first forest service was established in Guadeloupe.

The institutional and legal arrangements for forest management must be seen in the context of the political status of Guadeloupe, which was a French colony until the end of the second world war, at which time it became a Département of France (Law of 19 March 1946). These arrangements are complex, and find their basis on the following instruments:

- a decree of 30 December 1947 extended French forestry legislation to its overseas départements, including Guadeloupe;
- a decree of June 1948 stipulated that all properties of the former colony become properties of the Département, but placed the forests under the management responsibility of the Administration des Eaux et Forêts;
- following the creation of the Office National des Forêts (ONF) in 1964, a regional agency of the ONF for Guadeloupe was established in 1965.

In effect, the forest estate (forêt départementalo-domaniale) is, therefore, the property of the Département, but the management authority rests with the state.

There is also an arrangement whereby the forestry responsibilities of the French Ministry of Agriculture in Guadeloupe are vested in the Office National des Forêts. This was first done informally, but the arrangement was formalized in 1986 by a ministerial decree. The decree stipulated that specific conventions had to be signed, in each French overseas Département, to specify the roles and conditions of the Office National des Forêts in executing the mission of the local Direction de l'Agriculture et de la Forêt (the local directorate of the French Ministry of Agriculture). These conventions have not yet been signed. The functions involved are:

- the control of deforestation on private lands. This is in accordance with the provisions of the forestry law (Code Forestier) which stipulates that land owners must seek the state's authorization before cutting trees and deforesting their property;
- the development of economic activities linked to the forestry sector;
- involvement in the preparation of land use plans (notably the Plans d'Occupation des Sols);
- the identification and assessment of private lands to be considered for acquisition by the Conseil Général or by the Conservatoire de l'Espace Littoral et des Rivages Lacustres.

A major factor in the management of Guadeloupe's forests over the past two decades has been the establishment of the National Park (Parc National de la Guadeloupe). The history of the establishment of the Park can be summarized as follows:

- in 1969, the local political assembly, the Conseil Général, took a decision to request the establishment of a Parc Naturel Régional, in accordance with French legislation. This application was rejected by the relevant French ministry;
- the Conseil Général, however, decided to proceed with the establishment of what it called a Parc Naturel. It, therefore, signed a Memorandum of Understanding with the Office National des Forêts requesting it to manage the Parc Naturel. The main functions of this Parc Naturel were: to enhance public awareness and educate the public about the natural and cultural resources of Guadeloupe; to support tourism development by creating amenities and developing a new image for the destination; and to conduct scientific research. The Parc Naturel was not directly involved in the other aspects of resource management (control, legislation, enforcement), as it had no firm legal basis, and as the Office National des Forêts retained all its management responsibilities;
- in 1972, taking advantage of a visit from the Paris-based Director General of the Office National des Forêts in Guadeloupe, a symposium was organized, which brought together politicians and technicians concerned with forestry issues, and which confirmed the desire to establish some form of protection and management for the forest;
- in 1979, the Office National des Forêts began the process of establishing a Parc National, in accordance with French legislation. In 1981, it was formally vested with the responsibility to design and plan the Park, which was established by ministerial decree of 20 February 1989. The management responsibility for the Park was vested in the Office National des Forêts;
- the fact that the management of the Parc National was assumed by the Office National des Forêts created a number of tensions and conflicts, and a formal review of these arrangements was conducted in 1994, which led to the separation of the two institutions. A letter originating jointly from the French Ministers responsible for Environment and Agriculture, dated 28 April 1995, stipulated the conditions of collaboration (including the secondment of personnel from the Office National des Forêts to the Parc National, at cost) and the areas of responsibility. The Office National des Forêts now sits on the board of management of the Parc National.

The Park has a total area of 17,300 hectares, including 16,500 hectares of state forest (forêt départementalo-domaniale). In 1994, it had an annual budget of FF 23,600,000 (approximately US$4.2 million).

A Nature Reserve was established by decree in 1987 in the Grand Cul de Sac Marin, covering a total area of 2,700 hectares, including 1,600 hectares of mangroves. The responsibility for the management of this Reserve has since been vested in the Parc National de la Guadeloupe. The Parc National and the Réserve Naturelle du Grand Cul de Sac Marin were declared a Biosphere Reserve in 1994.

***Socio-economic profile of Guadelope***

| | |
|---|---|
| Population (1997) | 422,000 |
| Unemployment rate | 20.1% |
| Average annual rate of growth (1997) | 1.5% |
| Reproductive rate (1997) | 20 per 1,000 |
| Density (1997) | 237.1 per sq. km |
| Adult literacy (1997) | 91% |
| Primary schools | 344 |
| Secondary schools | 84 |
| University | 1 |
| Gross Domestic Product (1992) | US$3.3 billion |
| Per capita GDP (1992) | FF 44,651 |
| Exports | FF 557 million |
| Principal exports | bananas, sugar, rum, mineral water, flowers, electrical equipment |
| Imports | FF 10,011 million |
| Tourism sector | 7,500 hotel rooms , 625,000 total visitor arrivals |

Source: miscellaneous, all data from year 1996, except when noted otherwise

## 2. POLICY CONTEXT

Formal forest policies cannot be understood if they are not placed within the broader context in which they operate. Formal policies are determined by a broad range of policy factors, including popular perceptions, the culture and structures of decision making, the distribution of power, and other sets of cultural, social and political rules and norms which guide the collective behaviour of people.

In Guadeloupe, the following elements of context must be noted:

- centralized decision-making: because of the political status of Guadeloupe as a French département, there is a high level of centralization in decision-making, which manifests itself in three forms:
  1. overall policy direction is provided by the government in Paris, where all important decisions are made;
  2. in the implementation of these policies, and in cases where arbitration among local actors is needed, the Préfet, who is the local representative of the French government, has the most significant power;
  3. there is no strong tradition of, or established structure for, consultation in policy-making. Decision-making is generally technocratic, and what is typically described by governmental agencies as consultation and participation is the mere involvement of other public sector institutions in the policy-making process;
- strength of the Office National des Forêts: the forestry administration, because of its original status and culture as a paramilitary organization, and because of the scope of its work in natural resource management and development in Guadeloupe over the past decades, is a major actor in policy making. When dealing with forestry matters, it is in a position to formulate policies and decisions;
- squatting and forest concessions: practices at the time of the second world war, when farmers were authorized to establish plots in public forests, coupled with a tradition of political patronage

which has allowed local politicians to authorize the use of public lands for farming and other uses, have greatly influenced the perceptions and behaviour of people. While this situation has evolved rapidly over the past two decades, there remains a strong view, particularly in communities near mangrove forests, that this resource should be available for public use;

- the role of tourism: tourism is a major economic sector in Guadeloupe, and forest resources are a central part of the tourism product. Yet, tourism policies (marketing, product development, land use plans, etc.) are formulated without much consideration for issues of forest management. The decisions which are responsible for some of the most acute issues now faced by the forest management agencies, namely the impact of visitor use on the resource and the host communities, originate outside of the forestry sector, and are made without the involvement of the main stakeholders;
- forests as resources for recreation: the development of the Parc Naturel in the 1970s, with its emphasis on facilities and activities for local recreation (picnic areas, trails, etc.) has resulted in a very significant increase in the use of the forest for such recreational purposes. Forest areas are now perceived as important parts of the heritage, which everyone is entitled to enjoy, which schools and community groups must make use of, and which the state must place at the disposal of people. Some of the current management issues are created by this perception, and the demand coming as a result of it;
- the value of scientific opinion: in Guadeloupe, as indeed in Martinique, the views and opinions of scientists are taken very seriously, and are very influential in the process of policy making. In many respects, the success of advocacy work and the impact of public awareness campaigns depend more on the perceived legitimacy of the spokespersons than on the number or representativeness of people expressing the views.

## 3. CURRENT FORESTRY POLICIES

There is no overall policy statement to guide forest management in Guadeloupe.

Contrary to the situation which prevails in Martinique and in metropolitan France, there is no Schéma d'Aménagement Régional (SAR) for Guadeloupe. SARs are development plans which include land and resource use plans, and define the strategies for development and resource use in all sectors. These are long-term plans which guide the economic development and the use of land and marine resources. It is alleged that the Conseil Régional has resisted the preparation of the plan, because of its President's opposition to it.

The most specific and significant statements of forest policy are, therefore, contained in the individual forest management plans. According to French law, management plans must be prepared for and applied to all forests placed under the management authority of the Office National des Forêts. In Guadeloupe, management plans have been prepared, or are being prepared, for each forest unit, at the initiative of the Office National des Forêts.

The first management plan for the forêt départementalo-domaniale was prepared in 1979 for the 1979-1990 period (Office National des Forêts 1981). The management plan was formulated by personnel from the Office National des Forêts and entered into force by a decision of the French Ministry of Agriculture dated 30 May 1979. It identified three main functions for the forest resources:

- protection;
- timber production;
- provision of social services (recreation, employment, hunting).

The specific objectives of the management plan were defined as follows:

- the protection of a large portion of the state forest, for the purpose of protection and research;
- the establishment of mahogany plantations and the construction of roads to permit harvesting;
- the initiation of a programme of production of the podocarp, Podocarpus salicifolius;
- the improvement of public facilities and services, primarily for education and information, in collaboration with the Parc Naturel.

The management plan identified four zones:

1. an area of protection, covering 14,984 hectares;
2. an area of forest to be transformed into plantations, covering 8,020 hectares (with 3,850 hectares in mahogany, and 4,170 hectares in other species);
3. an area covering 500 hectares for the silviculture of the Podocarpus;
4. an area of 4,364 hectares reserved for the experimental silviculture of local species.

This management plan marked a significant departure from the specialization of plantations in mahogany, and towards a greater use of local species. The plan also envisaged that the clearing of land for mahogany plantations would generate 20,000 $m^3$ of timber per year, and that the two private mills, which existed at the time, could process most of that volume. Figures provided in section one above show that these targets have not been met, and that actual production levels have been far lower than expected. With respect to new plantations, the performance of the plan can be summarized as follows: while the goal was to establish 1,500 hectares of mahogany (with the intention of going as far as 8,000 hectares when conditions would permit) and 60 hectares of *Podocarpus*, the actual areas established were 560 and 40 respectively.

A new management plan was formulated for the period from 1991 to 2000 (Office National des Forêts 1993), and came into force by decision of the French Ministry of Agriculture dated 25 September 1994.

This management plan zoned the forest's 27,754.87 hectares as follows:

- 24,495.77 hectares reserved for protection, except for the harvesting of mahogany trees (in these cases there would not be any other intervention after harvesting). 16,200 hectares of this zone are included within the National Park;
- 180 hectares reserved for experimental silviculture work following the damages of Hurricane Hugo in 1989 and for the protection of the endangered *Syagrus amara*. This zone is contained within the area of the National Park;
- 1,328.80 hectares for primary production of mahogany;
- 308.00 hectares, also for production of mahogany, but in areas where its growth was considered less favourable for its development;
- 1,059.80 hectares for the harvesting of local species;
- 95.40 hectares for the silviculture of *Podocarpus*. This zone is contained within the area of the National Park;
- 287.10 hectares for the silviculture of local species. This zone is contained within the area of the National Park.

While this management plan is still in force, its production goal has *de facto* been abandoned, because it is now considered that the mahogany is not appropriate for new plantations, and that the cost of harvesting some of the established plantations would be too high. There is therefore a new policy of investing as little as possible, and focusing on new long term management objectives, with an emphasis on local species. A formal process of revision of the management plan is now underway, to cover the period from 2001 to 2010.

In 1997, a management plan for the coastal forest was prepared. It was adopted by decision of the French Ministry of Agriculture dated 29 April 1997. It covers 1,496.12 hectares. Its objectives are:

- to protect the coast, and to protect or enhance its vegetation cover;
- to protect wildlife and wildlife habitats in the coastal zone;
- to manage coastal landscapes;
- to offer opportunities for recreation.

A management plan has also been prepared for the forêt départementale. This estate, covering a total of 1,394.00 hectares distributed in nine units over the territory of Guadeloupe, is the product of land purchases made by the Conseil Général since 1976.

The Office National des Forêts has now begun a process of preparing management plans for all mangrove areas. The first planning document, concerning a small area of 184.82 hectares located at Petit Bourg, has recently been released.

The goal of the Office National des Forêts is to ensure that, by the year 2000, formal management plans would have been prepared and would be in force for all areas under its jurisdiction.

The policies of the Parc National de la Guadeloupe are defined in its schéma directeur d'aménagement, a management plan which was approved in December 1997 and which is about to be published. This management plan defines, in particular, the relationship between the National Park and the Office National des Forêts, and calls for a detailed contractual agreement between the two institutions, which is currently being negotiated. This agreement will divide the management responsibilities, to avoid gaps, overlaps and conflicts.

A management plan has also been prepared, by the Parc National de la Guadeloupe, for the Réserve Naturelle du Grand Cul de Sac Marin. It was adopted in February 1998.

Over the past two decades, the Conseil Général (Département de la Guadeloupe) has had a policy of acquiring private forests. Since 1976, a total of 1,394 hectares has been acquired, with the Conseil Général also covering the costs of managing the lands that it has acquired.

Important policy directions are also provided by the Plans d'Occupation des Sols, land use and development plans formulated for each municipality. The POS is the main instrument to guide the use of forested areas on private lands.

Another policy instrument which is being developed is the Schéma Directeur d'Aménagement et de Gestion de l'Eau (SDAGE). It is a management plan for water resources, which is required by French law, and which is being prepared under the leadership of the Direction Régionale pour l'Environnement (DIREN), the local directorate of the French Ministry of the Environment. The preparation of the SDAGE for Guadeloupe has recently begun, with preliminary studies and with the consultation of the various interest groups.

The current status of formal policy making with respect to forest resources can, therefore, be summarized as follows:

| *Policy requirement* | *Current status* |
|---|---|
| Provision of overall vision of and goals for forest management, within broader development context | No overall policy statement. Sectoral policies not harmonized. Policy conflicts exist. |
| Institutional coordination and collaboration | Mechanism provided, to some extent, by the *Parc National* for the resources and territory for which it is responsible. Lacking otherwise. |
| Sectoral policy: water management | Policy under formulation (SDAGE), the extent to which it will address the relationship between forestry and water management is unclear. Absence of legislation to govern the management of rivers. |
| Sectoral policy: biodiversity management | Policy framework provided by the *Parc National* and by the forest management plans. Gaps remain. |
| Sectoral policy: tourism and recreation | Policy framework for the management of tourism and recreation activities within a portion of the public forest provided by the *Parc National*. No policy for the management of the broader impact of tourism policy on forest resources. |
| Sectoral policy: timber production | Policy under review, defined by forest management plan, to include objectives, plans, standards and management activities. |
| Information acquisition and dissemination | Research policies and programmes determined by individual agencies. No overall framework. |
| Public participation and decentralization | No policy statement. |
| International cooperation | Policy directions provided by the agreements signed by the Government of France, notably the Cartagena Convention, the Convention on Biodiversity and CITES. |

# 4. EMERGING AND CURRENT ISSUES AND PROBLEMS

## The lack of effective management of private forests

All institutions involved, in one way or the other, in the management of natural resources in Guadeloupe note their concerns over the deforestation that occurs on private lands. They also note the absence of effective management of private forests, and the fact that various plans for reforestation over the years have not materialized.

This problem is particularly acute in the Grande Terre area, where there is inadequate control of deforestation, and where there are critical problems of erosion and water supply.

## Viability and future of timber production

The Office National des Forêts and all major actors in Guadeloupe now recognize that mahogany production is not feasible.

This has implications for the viability of the forestry institution as a whole. Its revenue covers only 50 percent of its expenditure, and most of that revenue comes from contracts with local government agencies and private sector companies (notably in tourism), for site development, beautification and maintenance.

With a radical shift in policy towards the use of local species, there is need for research in silviculture. The Institut National de la Recherche Agronomique (INRA) also sees the need to analyse the genetic diversity of the mahogany plantations, and to ascertain whether a lack of diversity could have been, as least partially, responsible for the poor performance of the plantations.

## Need to reform the forestry administration

The leadership of the Office National des Forêts sees the need to reform its institution, particularly as it relates to the roles, attitudes and skills of its field personnel. In the past, forestry officers have been trained primarily to be the designers and supervisors of works (roads, plantations, trails), rather than the managers of the resource. They now need to be involved in all aspects of management, including research and field experimentation.

## Overlapping institutional responsibilities

While the Office National des Forêts and the Parc National have established a clear understanding of their respective responsibilities, and have obviously clarified most, if not all, of the issues which affected their collaboration a few years ago, the current situation remains potentially difficult, as there are two institutions with jurisdiction over the same resource and territory, with a third institution, the Conseil Général, being the legal owner of that resource.

Most people who are aware of the issue (elected members of both local assemblies, scientists, and members of staff of the two management agencies) agree that the most fundamental problem is the absence of an overall policy and planning framework, which would guide, and encompass, the policies and plans of these institutions. The instrument which would provide such a framework would be the Schéma d'Aménagement Régional, which has been mentioned above.

## Deforestation, gathering of forest products and illegal clearing on public lands

This issue is serious in two main locations: one is an area of rainforest on the eastern slopes of Basse Terre, called Sarcelles, the other is the mangrove. In Sarcelles, an area of 120 hectares has been cleared and farmed by squatters since the 1970s. Elected members of the two local assemblies now declare themselves in favour of expulsion of these squatters. In the mangrove, there are frequent conflicts between illegal farmers and the Office National des Forêts.

There is also a growing concern over the cutting of trees for stakes, which are used primarily in construction. The fact that there is an extensive network of forest roads makes this problem particularly acute, because people can have access to many parts of the public estate without the possibility of control.

## High cost of maintenance of public facilities

It is estimated that the cost of maintenance of trails ranges from FF 10,000.00 (approximately US$1,750.00) to 40,000.00 (approximately US$7,000.00) per km per year. This implies that the cost of trail maintenance oscillates between US$700,000.00 and US$1,100,000.00 per year in Guadeloupe. Yet, there is no system of fees or other form of revenue collection. The Parc National de Guadeloupe is aware that the local cultural context is one where it is virtually impossible to charge for the use of public natural attractions. It, however, intends to advocate the need to charge fees, generate revenue and invite members of the public to contribute to the maintenance of the facilities they enjoy.

## Managing the impacts of visitor use

In the view of both the Office National des Forêts and the Parc National de la Guadeloupe, but also in the view of public and private sector tourism agencies, one of the greatest issues affecting forest management in Guadeloupe at this time is the issue of the impact of visitor use on attractions, and particularly on three heavily used sites (the Soufriere volcano, the Carbet waterfalls and the areas near the Traversée road). Because of the quality of the facilities which were installed in these areas in the 1970s, and because of the central place of the Parc National in the definition of the tourism product of Guadeloupe, these sites have extremely high levels of visitation, and this creates a number of problems which were not foreseen by those who developed the sites in the first place: visual impacts; destruction of the vegetation; proliferation of stray dogs, mongooses and rats; costs of maintenance of trails and other facilities; conflicts between the management agencies, commercial concessionaires, and illegal vendors, etc. People living in nearby communities are also very concerned that they do not get the economic benefits from the touristic use of these sites.

An initiative to address this issue has, therefore, been taken by the Parc National, which has developed a new policy to deal with the problem. In two of the three locations, it will establish a new system whereby visitors will not have vehicular access to the sites, but will be required to use public transportation arrangements between public parking areas and the sites. The parking areas will be located near villages, and will provide an opportunity for small business development, particularly restaurants and bars. The sale and consumption of food items within the perimeters of the sites will be controlled.

## Impact of public sector infrastructure

Over the past two decades, there have been a number of large public sector projects which have affected forest resources in Guadeloupe.

The most noticeable among these are the projects which took place around the urban area of Pointe à Pitre, and which resulted in the destruction of mangroves. Indeed, observers from the Université des

Antilles et de la Guyane, the Parc National and the Office National des Forêts indicate that mangroves were perceived by decision-makers as a land reserve for urban expansion. New roads, the expansion of industrial estates, the construction of a sanitary landfill and the construction of a new international airport all resulted in the destruction of large areas of mangrove forests. This situation has however changed, largely as a result of the education and public awareness campaigns that took place in the past twenty years. It is now felt that mangroves are no longer threatened in this manner.

Similar problems have occurred in the mountainous part of the island. In the 1970s, against the advice of the Office National des Forêts, the local directorate of the Ministry of Works began construction of a road against the slopes of the Citerne dome, which was never completed, but resulted in significant erosion. Another issue of concern to the Parc National and the Office National des Forêts is the fact that telecommunication dishes and antennas have been erected in a most scenic area (La Citerne) near the Soufriere volcano. Negotiations are currently underway to attempt to relocate this equipment.

A new, and perhaps more complex, issue is emerging with the proposal to construct a dam within the perimeter of the public forest, and in the territory of the National Park. This proposal, piloted by the Ministry of Agriculture, is justified by the need to irrigate the dry areas of Grande Terre. All agencies directly concerned with forest management (Office National des Forêts, Parc National, University) are opposed to this project. An impact study has been requested but has not yet been completed. It is the feeling of most local actors that the final decision will eventually be made by the French Council of Ministers. One of the arguments of the opponents to this project is the fact that existing systems of water supply are extremely inefficient (figures of 60 percent losses are mentioned by researchers at the University) and that many problems would be solved if this received attention and investment.

## Lack of organization among resource users

The management agencies, particularly the Office National des Forêts and the Parc National de la Guadeloupe, regret the fact that users of forest resources, particularly the hunters, are not well organized, and are thus unable to participate meaningfully in management decisions.

## Absence of legislation for the conservation and management of rivers

The Office National des Forêts sees this as a major issue, and so does the National Park, which has recently begun an initiative to bring together the various public agencies concerned with river resources, with the view to developing a strategy for an institutional and legal review.

# 5. PROCESSES AND MECHANISMS OF FORMAL POLICY FORMATION

The case of the preparation of the forest management plan for 1991-2000 is used to describe the processes employed by the Office National des Forêts in the formulation of policy. The following features of the process can be noted:

- it was written by a young graduate forester from metropolitan France;
- field staff of the Office National des Forêts were used for the description of areas under plantation and silviculture;
- two meetings and one field trip were held with the Scientific Committee of the National Park, and one meeting was held with its Board of Directors;
- one meeting was held with representatives from the hunters;
- a review of the draft management plan was carried out by the Works Commission of the Conseil Général;

- the Commission Départementale des Sites (which is responsible for landscape management) reviewed the draft management plan and formulated an opinion.

All these activities were actually conducted or led by a member of the staff of the Office National des Forêts, under the supervision of its regional director for Guadeloupe.

Following the preparation of the management plan, formal approval was sought from the Conseil Général, as the owner of most of the land, but also as the elected body representing the people of Guadeloupe, and from the general directorate of the Office National des Forêts in Paris. The management plan came into force through a decision from the Ministry of Agriculture, as is the case for all forest management plans in France.

Forest policies are largely influenced by the positions and views of the people leading the Office National des Forêts. In 1995, with the appointment of a new director for Guadeloupe, the dominant view within the organization was that timber was available and ready to be exploited, but that there were no enterprises to harvest. The Office National des Forêts therefore launched an initiative to attract French investors to establish harvesting and processing facilities. It was however soon realized that the resource was not sufficient to sustain such levels of exploitation.

The current revision of the management plan for the 2001-2010 period is no more participatory than previous processes. The lead responsibility for the preparation of the management plan is assumed, under the supervision of the head of the service for Guadeloupe, by two young foresters from metropolitan France who have just graduated from school and who do not have forest planning or management experience. Consultations are however held regularly with the University, the Institut National de la Recherche Agronomique (INRA) and the National Park.

The procedure followed for the preparation of the Schéma Directeur d'Aménagement for the Parc National de la Guadeloupe offered the following features:

- the need to define the plan was identified by the board of management of the Park, and a consensus was reached among all direct stakeholders (board, staff, collaborating institutions) that such a plan was needed;
- financing for the preparation of the plan was provided by the French Ministry of the Environment, with a consulting firm facilitating the process. Most of the activities were actually conducted by staff, board and collaborating institutions;
- the approach defined was based on the understanding that the Park must pursue management objectives that encompass the human activities which impact or depend on the Park;
- the first phase of the process involved the identification of strengths and weaknesses, and issues were identified;
- on the basis of this identification of issues, the Park developed sectoral strategies, notably with respect to communication, biodiversity conservation, and reduction and control of visitor impacts;
- at various stages in this process, meetings were held with the municipalities, with professional organizations, with private sector groups and with other interested people to identify and discuss concerns, and to develop responses which would reflect the needs of the various stakeholders;
- the Park has also formulated a new administrative and management structure, better suited to meet the needs that it has identified in this process;
- the conclusions of the plan have been formally endorsed by the relevant ministries and administrations, thus binding the various actors to the implementation of the plan.

Another important process of policy formulation, which is currently in progress, is the preparation of a plan for the management of water resources (Schéma Directeur d'Aménagement et de Gestion des Eaux - SDAGE). It is being developed at the initiative of the Government of France, according to a law of 1992 which stipulates that every Région should develop a plan for the management of its water resources. The preparation of the plan is being led by a Committee comprising representatives from ministries, local government agencies, community organizations and selected resource people. Formal consultations will be held with the two local assemblies (Conseil Général and Conseil Régional).

As a first step, the Committee has identified the main management issues that should guide the preparation of the plan, namely:

- the preservation of the resource;
- the maintenance of the quality of the water being distributed, and the control of pollution;
- the reliable and adequate distribution of water, to meet existing and future needs;
- the rational and sustainable use of water resources;
- the control and prevention of wastage;
- the development of public awareness and involvement;
- the monitoring of water resources, as the basis for decision-making and collective action.

For each of these directions, specific issues and objectives have been identified by the Committee, which will form the basis for the identification of actions, policies and legal instruments.

## 6. POTENTIALS OF THE SECTOR

An analysis of the potential of the forestry sector can best be done by looking at the most important functions of the resource, and determining, for each of these functions, the main constraints and opportunities.

| *Function* | *Potential* |
|---|---|
| *watershed conservation* | With the lack of water resources in the dry parts of the Guadeloupean archipelago, and with the continued growth of the population and of the tourism sector, there is need to manage the water supply carefully. A primary function of forest management in Guadeloupe must be to conserve water resources. |
| *tourism development* | The forest is a central element of the tourism product of Guadeloupe. There is need to manage this activity carefully, and two priority directions emerge: the control of environmental, social and economic impacts of the tourism activity in the main attractions; and the need to generate revenue from tourism use. |
| *recreation* | It is remarkable to note the place that the forest has gained in the lives of the people, as a source of recreation and enjoyment. This function of the forest should be maintained, nurtured and used as the basis for the development of new attitudes towards nature and its resources. |
| *biodiversity conservation* | Guadeloupe has a unique flora and fauna, and offers well-preserved samples of all major ecosystems found in the eastern Caribbean. These resources should, therefore, be managed and protected, and should be used for research purposes. In this domain, Guadeloupe has to assume a regional and international responsibility, as its resources have enormous significance. |
| *timber production* | This potential is much more limited than what was thought two decades ago, but it is not insignificant. In the public forests, the challenge, as identified by the forestry administration, is to build on the research and experiments made with the silviculture of local species, and to develop a new approach in the long term. On private lands, the challenge is to ensure that owners do manage existing resources and become involved, wherever it is feasible, in plantations and timber production. |

## 7. INSTITUTIONAL ARRANGEMENTS

Guadeloupe is both a Département and a Région in the French political and administrative system. The French government is represented, in the Département, by a Préfet, and by directorates for each of the ministries or major state agencies.

Both the Département and the Région have elected political assemblies. For the Région, the Conseil Régional has the responsibility for the overall planning framework for the island's economic development, and for the development of specific economic sectors. For the Département, the Conseil Général manages properties and assumes primary responsibility for social infrastructure and services.

Local government agencies are the municipalities, headed by elected mayors and municipal councils, and responsible for local level social services and for the formulation and implementation of land use plans. They also have the power to own land and property, and are engaged in a wide range of developmental activities within their territory.

The institution responsible for the management of forest resources is the Office National des Forêts, a statutory body created in 1964. It is organized in regions, with a Direction Régionale for each of these regions. There is therefore a Direction Régionale in Guadeloupe, which has responsibility for the management of the forêt départementalo-domaniale and the forêt départementale (see above). The Office National des Forêts can also assume responsibility for the management of other properties, under contractual agreements.

In 1996, the Office National des Forêts had the following personnel:

- 33 permanent technical staff (forest engineers and technicians)
- 19 permanent administrative staff
- 50 permanent workers
- 37 contractual workers
- 4 VAT (military service)
- 11 short term employees

The current structure of the Office National des Forêts in Guadeloupe is as follows:

- one Director
- one administrative division
- one field division, divided in three geographic sectors
- - one technical division, responsible for research, training, development, nursery management and contractual services

In 1996, its financial operations were characterized by the following (figures in French francs):

| | |
|---|---|
| **Total expenditure:** | **30,947,167** |
| **Revenue:** | |
| - grants, state and EU | 1,952,596 |
| - Conseil Régional | 109,589 |
| - Conseil Général | 944,075 |
| - Municipalities | 1,825,519 |
| - Parc National de la Guadeloupe | 3,558,608 |
| - miscellaneous contracts | 1,138,657 |
| - sales of lumber | 220,757 |
| - sale of hunting licenses | 150,100 |
| - other forest products and fees | 156,892 |

The balance of the income is provided by the Office National des Forêts.

## 8. POLICY STUDIES

Over the past ten years, there has not been any study focusing on any aspect of forest policy in Guadeloupe.

# 9. CONCLUSIONS AND RECOMMENDATIONS

This brief review of forest policy in Guadeloupe reveals a very interesting case of policy failure, with decades of investments in mahogany plantations having been practically abandoned, and with a radical shift away from plantations towards a more modest and long-term effort in the silviculture of local species. This is a case which deserves a more detailed documentation and analysis, as it could yield interesting lessons for forest policy making in the region.

From a regional and international perspective, it is obvious that Guadeloupe has a very important role to play, because of the lessons its experience can teach, because of the strength of its conservation and management programmes (particularly within the framework of the National Park), and because of the quality of its research institutions and programmes.

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# REVIEW OF FORESTRY POLICIES IN GUYANA

**by K. King**

## 1. INTRODUCTION

### The Perception and Scope of Forestry in Guyana

Guyana, vaguely shaped like the human torso, lies wholly in the tropics. It is situated on the northern coast of South America between 0 45' and 8 38' north latitude, and the meridians of 56 32' and 61 22' west longitude.

Four main physiographic regions are recognized in the country:

1. the Coastal belt of low-lying alluvium, much of which has been reclaimed for agriculture, but which still carries a complex series of forest, swamp, and marsh communities;
2. the Lowland region of undulating forest land, generally below 500 feet in elevation in which, although a little agriculture is practised, the main activities are forestry and mining;
3. the Pakaraima Mountain region, an elevated table-land rising to an altitude of 9,000 feet at Mount Roraima; and
4. the Southern Upland region of undulating forest land, generally above 500 feet in elevation.

Guyana has an area of 214,970 square kilometres, more than 169,000 square kilometres (or more than 75 percent) of which are forested. The area of forests which are directly managed by the forest authority, the Guyana Forestry Commission, is 89,000 square kilometres. These forests are mainly located in the Lowland region. The Government has decided, however, to extend the forest estate managed by the Forestry Commission to include most of the remaining forests in this Lowland region, and also some of the forests in the Southern Upland region.

Records of commercial forest exploitation go back to the early years of the seventeenth century, when Dutch merchants and settlers established plantations of cotton, indigo, and sugarcane on the principal rivers of the country, and utilized the timber from the natural forests both for local consumption and for export in small amounts. Since then, the harvesting and extraction of timber, for various destinations and for a multitude of uses, have become an integral part of Guyana's socio-economic life.

However, although the authorities responsible for forestry have long been aware that certain types of forestry activities might adversely affect soil fertility, increase the incidence of soil erosion, lead to fluctuations in the supply and quality of water, and reduce the range of the biodiversity of the forest vegetation, they did not, in the past, pay particular attention to these aspects of forestry. There were reasons for this benign neglect; the intensity of forestry exploitation was extremely low, there were no signs of forest destruction through the practice of forestry, and there was very little evidence of erosion.

The main concerns of the Guyana Forestry Commission were in sustaining the supply and yields of those forest species which they knew to possess commercial possibilities, or which were currently in demand; and in monitoring the exploitation of the forests.

This exclusive concentration on the productive aspects of forestry was radically changed in the mid 1980s, however, when the Government of Guyana decided to grant a series of fiscal incentives to foreign investors who wished to extract timber products from Guyana and to establish forest industries.

Environmentalists from all over the world were quick to point out the potential dangers to the forest ecosystems from uncontrolled exploitation; and international agencies, with interests in and responsibility for forestry, also expressed the view that the hitherto neglected aspects of forest conservation should be given the highest priority. The Government of Guyana was easily convinced. It dedicated a million hectares of the country's forest patrimony at Iwokrama to international forestry research; and it acceded to the declarations of the environmental conference held in Rio de Janeiro in 1992.

It should not, therefore, be surprising that all Guyanese now seem to share a concept of forestry that is holistic; a concept which embraces the managed exploitation of forests on a sustainable basis, and the conservation of water, soil and biodiversity.

The elements which are encompassed in the Guyanese concept of the meaning and scope of forestry include forests and trees, food and medicine from trees and forests, trees and forests in support of agriculture, trees and forests in support of tourism and recreation, trees and forests in support of biodiversity, ecosystem maintenance, and the conversion of wood raw material into all types of forest products, from the most simple, such as wood for fuel and lianes for ropes and chairs, to the most sophisticated such as plywood and possibly pulp and paper.

This view of the meaning of forestry also embraces the means and organization of utilizing and conserving the nation's forest. Thus watersheds and watershed management, wildlife management, the establishment of national parks and protected areas, and the ways of life of communities living in or near the forests are all considered, in concept, to be part and parcel of forestry.

Although large foreign forest industrialists, large and small local forest producers, local entrepreneurs, NGOs, the Amerindian communities, government officials, and ministers of the government all subscribe to the all-encompassing nature of forestry in Guyana, they tend to attach different priorities and differing levels of significance to individual components of the concept. For example, non-governmental organizations ascribe higher priority to the forests' capacity to conserve water and soil and biodiversity than they do to the productive aspects of forestry. Perhaps not surprising, the forest industrialists, both local and foreign, place greater emphasis on timber production and forest industry development. In general, forestry officials, and politicians in all the major political parties in Guyana, appear to be more even-handed in their approach to what might appear to be conflicting objectives of forestry in a poor, developing economy. All were of the opinion that it was the duty of the state to optimize the joint production of the goods and services which the forests provide.

It should be noted, however, that although there is a common view that forestry in Guyana embraces the gamut of inter-related functions and services, the nature of the Government's interventions in forestry varies with the type of activity, with the location of the forests, and with their ownership.

Thus, for example, wildlife management is the responsibility not of the Forestry Commission but of a unit located in the Ministry of Health, and national parks and protected areas are under the aegis of the Environmental Protection Agency. Moreover, although the sustainable management of forests that are privately owned are considered to be "forestry", the Government's role in such management is mainly advisory. In addition, although those forest areas that have been designated State Forests are under the control of the Forestry Commission, forests on State Lands are the responsibility of another Division in the Ministry of Agriculture.

In summary, the concept of forestry in Guyana, which is held by all the stakeholders in the country, is holistic. It embraces all the services which the forests provide, as well as the production of a range of forest goods. The management of various aspects of forestry, however, does not lie in one particular organization, but is distributed among, or delegated to, several groups and agencies.

## Guyana's Socio-Economic Profile

After more than a decade of decline and stagnation, the economy of Guyana began to make an upsurge in 1989. Indeed, since that year, with the adoption of more liberal philosophies and processes of development, annual rates of growth of GDP in real terms have averaged seven percent, the highest sustained rate of economic growth in Latin America and the Caribbean in that period.

The data provided below indicate, however, that in many respects Guyana is still a very poor country.

***Table 1 Economic Growth***

| | *1991* | *1992* | *1993* | *1994* | *1995* | *1996* |
|---|---|---|---|---|---|---|
| Real Growth GDP (%) | 6.7 | 7.7 | 8.3 | 8.5 | 5.1 | 7.9 |
| Per Capita GDP (US$) | 420 | 454 | 531 | 612 | 680 | 766 |

***Table 2 Population Census Data***

| | *1980* | *1990* | *1996* |
|---|---|---|---|
| Amount '000 | 759.6 | 723.8 | 720.7 |

Note: (i) 56 percent of the population was under 24 years of age, and 74 percent was under 34 years of age, in 1996. (ii) 11.7 percent of the economically active population was unemployed in 1996.

In Guyana, life expectancy is currently 64 years. For females it is 69 years, and for males 63 years. The crude birth rate is 29.8 and the crude death rate is 7.1. In 1995 the infant and child (under-five) mortality rates were 32 and 65 respectively.

In 1994, a World Bank Report stated that in Guyana, "the educational system, once considered as one of the finest in the Caribbean is probably ... the weakest". This conclusion was repeated in 1996, by the Caribbean Development Bank (CDB), when it expressed the view that in "the mid 1960s Guyana's educational system compared favourably with that of sister Caribbean nations. However, at the present time, Guyana ranks near the bottom..."

Although the situation has improved slightly during the past two years, the nation's education system is still bedevilled by a shortage of human, physical and financial resources. In 1995, the literacy rate was 85, but the rate of functional literacy was as low as 36 percent.

# 2. CURRENT POLICIES

## The Forest Policy

The Cabinet of the Government of Guyana approved, on 4th November, 1997, what it described as Guyana's "National Forest Policy Statement".

In the introductory remarks to the Statement, it is pointed out that no official Forest Policy Statement had been published by a Government of Guyana since 1953. There had been, however, profound changes in Guyana's economic, social and political environment over the last 50 years: Guyana had become politically independent in 1966, and increasing attention was now being paid by the public at large to the environmental aspects of forestry, and to the importance of managing the multi-faceted resources of Guyana's forests in a sustainable manner. The Government drew attention to the decisions taken by the Earth Summit in Rio de Janeiro in 1992, and stated that these decisions had influenced its policies and strategies.

The view is also expressed in the document's Introduction that if the policies and strategies that are adumbrated in the National Forest Policy Statement were implemented, Guyana, in a decade or so, will have inter alia:

a. taken steps to ensure that its forest resources deliver substantial benefits for national development for all members of society, while not compromising the livelihoods of forest dwellers;
b. created appropriate economic conditions for investors;
c. fostered the growth of an efficient forest industries sector;

d. published and adhered to transparent systems of forest allocation and administration;
e. developed a system for generating and approving forest management plans, with defined processes for sustainable management;
f. established a code of practice for forestry;
g. created inviolate reserves of representative samples of the country's various forest ecosystems;
h. initiated a level of control over all harvesting activities to protect biodiversity and ensure sustainable production;
i. created an efficient database;
j. established training and education institutions in forestry;
k. undertaken relevant research; and
l. discharged its forestry obligations under international treaties and agreements.

The Introduction placed the country's new forest policy statement squarely within the context of the nation's Constitution by referring to ARTICLE 36 of the Constitution which proclaims:

> In the interests of the present and future generations, the State will protect and make rational use of its land, mineral and water resources, as well as its fauna and flora, and will take appropriate measures to conserve and improve the environment.

The introductory statement also identifies a number of constraints to the development of the forest sector in Guyana: inappropriate harvesting practices, low levels of efficiency in utilization; inordinate waste after harvesting; critical shortages of skilled human resources; inadequate availability of capital; poor rules and mechanisms for land use allocation; unclear government investment policies; the absence of a tradition of sustainable forest management; and the paucity of reliable data on the volume of forest resources and on their rates of growth and yield.

In addition, it emphasized that physical factors such as poor soils, and biological factors, such as high species diversity, lead to a higher vulnerability to mismanagement. It affirmed that the forest policies and strategies presented in the document were intended to take appropriate account of these constraints.

## The Content of the Forest Policy Statement

### *Arrangement of Document*

The main statement is divided into eight parts. Part I delineates the overall and specific objectives of the nation's forest policy. Part II deals with land use policies and land use strategies. Part III lists and discusses forest management policies and strategies. In Part IV policies and strategies relating to forest industries development are examined. Part V outlines the policies and strategies pertaining to research and information, and Part VI deals with forestry training and education policies and strategies. In Part VII the policies and strategies which ought to be followed in forest administration and governance are adumbrated. The statement ends in Part VIII with a concise description of the instruments to be utilized in the implementation of the policies and strategies put forward in the document.

### *Objectives*

The overall objective of the National Forest Policy is the conservation, protection, management and utilization of the nation's forest resources, while ensuring that the productive capacity of the forests, for both goods and services, is maintained and enhanced.

The specific objectives are to:

(a) promote sustainable forest activities, utilizing a broad range of forest resources and contributing to national development, while allowing fair returns to investors;
(b) achieve improved sustainable yields while conserving ecosystems, biodiversity, and the environment;
(c) ensure watershed protection, from all types of depredations, and rehabilitation

## *Land Use Policies*

The statement emphasizes that land use decisions and plans, particularly as they relate to forest resource management, are a necessary basis for forest policy. It, therefore, states that the nation's forest policy should be an integral part of a comprehensive land use plan which provides guidelines for environmental protection and sustainable resource allocation; a legal framework for resource management; national programmes for resource management; and an institutional framework for land use implementation.

Among the strategies which the document lists for the implementation of the policies put forward are: (a) the review and reform of relevant legislation to remove overlaps in responsibilities for land management. It states explicitly that such reforms should ensure that the Forest Act and Regulations are consistent and in harmony with other legislation; (b) the development of a centralized data base; (c) the preparation of national, regional and local land use plans; (d) the encouragement of Amerindian Councils and private owners with more than one hundred acres of forested land to develop and implement, with the assistance of the Forestry Commission, sustainable management plans for forests on their lands; and (e) the cataloguing, in accessible forms, of relevant information on land use.

## *Forest Management*

The basic policy with respect to forest resource ownership is stated as follows: "All forests, including those now on State lands, but with the exception of forests privately held or allocated to Amerindian communities, shall be designated State Forests. The area of State Forests shall therefore be extended".

State Forests, according to the Statement, are to be classified as follows:

(a) Permanent production forests in which the principles of sustainable management shall be applied.
(b) Permanent production forests and biodiversity reserves - these shall be inviolate.
(c) Reserve forests - forests which are yet to be classified, and on which no exploitation shall be permitted.
(d) Extractive forests reserved for the exclusive utilization of their non-timber forest products.
(e) Multiple use forests.
(f) Permanent research forests.
(g) Conversion forests - forests to be cleared for other uses.

The Statement emphasizes that all the resources of the forests shall be managed in a sustainable manner; the commercial exploitation of State Forests shall be undertaken only under concession agreements which must be obtained through a process of advertisement and bidding or tendering; the duration of logging concession licences shall be for 40 years; and the Forestry Commission shall be responsible for the regulation of operations in concessions. The method of regulation shall be through the approval and monitoring of management and operational plans, and the development and monitoring of codes of practice.

The Statement pays specific attention to Forest Charges. It lays down that a Sustainable Forest Development Fund shall be established to make loans to the sector, with the specific aim of advancing forest management. It states that forest revenue should be of two kinds: area fees and stumpage fees.

And it asserts that revenues from stumpage fees would be paid directly into the Consolidated Fund, while those from area fees and from fines accruing from forest offences would be the property of the Guyana Forestry Commission.

The Forest Management Strategies include the continuous undertaking of resource inventories, including surveys of the forests' non-timber resources; the preparation of management plans; the formulation and execution of a coordinated programme of forest improvement through regeneration and rehabilitation; and the stipulation that management or operational plans be a condition precedent for the issuance of licences or permits. The Guyana Forestry Commission, as an essential part of the policy implementation strategy, is charged with the responsibility for formulating an economic rationale for the levels of stumpage and area fees.

## Forest Industries

The main policy objective, with regard to forest industries, is the development of a financially and economically viable forest industries subsector. Priority areas for foreign investment would be the more capital-intensive higher technology projects, and those that are linked to overseas marketing networks. Domestic processing would be encouraged where economically and financially feasible. In addition, the commercial production and processing of non-timber forest resources, such as fibres, latex, oils and fruits, would be promoted as an essential element of sustainable forest utilization.

Among the strategies devised to implement these policies are the joint establishment, by the Guyana Forestry Commission and the private forestry sector, of a unit to provide technical assistance in the preparation of feasibility studies; and the establishment at the Forestry Commission of a unit to collect and disseminate information to potential and established investors on forestry-related matters. Moreover, all investors in the sub-sector would be required to submit forest industries development plans.

In addition, detailed strategies are put forward for the enhancement and intensification of local processing, and for the improvement of the marketing and promotion of the country's forest products. These include the granting of incentives, the production of promotional material, the development of appropriate mechanisms for certification, and the establishment of a Market Research Unit to develop the export trade.

## Research and Information

The over-riding policies in regard to research and information are that (a) the State shall promote appropriate research into all aspects of forestry and forest related activities, (b) the Forestry Commission, acting under the guidance of a Forestry Research Committee, shall be the focal point for all national research relating to forestry, and (c) the Forestry Commission shall disseminate knowledge and information on all aspects of forestry to enhance understanding and appreciation of the value of Guyana's forests.

The strategies include the establishment of a Forestry Research Committee, a dedicated fund to support the research programme, and a national centre for research. The broad priority areas of research (non-timber forest products; multiple land use; various aspects of silviculture and regeneration; experiments on erosion, run-off, water-loss, felling damage; forest communities; forest plantations; and agroforestry systems) are listed; and the creation of a relevant data base is again strategized.

## Training and Education

Here also the basic policy is all-encompassing: training and education in forestry and forestry-related disciplines shall be provided at all levels and for all types of forestry activities. To attain this broad objective an Education and Training Sub-Committee shall be established as the principal agent for the coordination of training and education, and collaborative efforts in forestry education shall be

established between the Forestry Commission and the University of Guyana. In-service training, at all levels shall be given major emphasis. In addition, a dedicated Forestry Education and Training Fund shall be established by the Guyana Forestry Commission. Finally, the establishment of a Forestry Vocational School in the interior of Guyana is a major plank in the strategy for the training of low-echelon forestry personnel.

## Forest Administration and Governance

The policy put forward with regard to forest administration and governance is straightforward: all administrative arrangements for the development of the forestry sector in Guyana shall be aimed at servicing and supporting the sustainable management of the country's forest resources and industries. The strategy to assist in the attainment of this policy objective involves a review and harmonization of the responsibilities of the various government agencies which operate in the national resources sector; a review of the functions of the Guyana Forestry Commission; the promulgation of a new integrated National Forests Act; and the establishment of a more rational government structure for forestry administration, management, and development.

## Instruments for Implementation

The document ends with a statement to the effect that appropriate legislation shall ensure effective implementation of this policy. A new integrated National Forest Act shall replace all existing national forest legislation and provide for the establishment of the mechanisms, institutions and other measures described in the policy for its implementation.

## Policy Review

### Character of the Document

The Government of Guyana itself describes the document as a National Forest Policy Statement. Indeed, to a great extent, the document enunciates a number of general and broad objectives which it is hoped will be attained if the policies put forward in the document are implemented. It would be wrong, however, to assume from this, that the document is merely the Government's expression of its general purposes or ends, and of the desired state of affairs regarding the forestry sector.

On the contrary, the document emphasizes not only the policies but also the actual courses it wishes to be pursued in the achievement of both general and specific objectives; outlines the strategies to be followed and the means to be employed in order to implement these policies; and is specific about the types and substance of the legislation to be enacted, the administrative structures to be put in place, the educational and research arrangements to be made, and the range of funds which must be established, in order to attain the goals that have been set.

The document, therefore, combines what are traditionally considered "forestry policy statements" with many elements of what are often defined as policy programmes. In short, it is a statement which embodies general and specific policy objectives with strategies which include the administrative, legal and financial framework for attaining them.

## Policy Originators

The Government of Guyana has entered into an agreement with the Government of the United Kingdom, through its Department for International Development (DFID), to assist the Guyana Forestry Commission to manage the country's forest resources effectively and efficiently. The main elements of this Guyana Forestry Commission Support Project are:

(ii) a revision of the national Forest Policy and of its Forest Law;
(iii) the strengthening of the structure and functioning of the Forestry Commission;
(iv) the strengthening of administrative procedures and technical capabilities within the Commission;
(v) the strengthening of the forestry sector's training capacity; and
(vi) the developments of forest information systems.

It was in pursuit of this agreement that the Government of Guyana, (at both the political and technical levels) decided to formulate a new forestry policy.

## Policy Makers intention

The policy makers intention was clearly stated in their introductory remarks, which have already been reproduced earlier. Put in another way, the intention was to formulate a set of proposals which, if followed, would enable Guyana to optimize the returns from its forest resources while at the same time ensuring the conservation of its forest ecosystems for the benefit of future generations. It was not intended that these policies would stand alone, or would remain in splendid isolation. Prescriptions were, therefore, made within the document itself, for the enactment of relevant legislation, and the establishment of supporting institutions, to underpin and give effect to the policies.

## Issues and Problems

From perusals of the Forestry Policy document itself, and of the literature pertaining to forestry and economic development in Guyana, and from discussions with representatives of a range of stakeholders in forestry and related fields, certain burning issues and problems that are relevant to the development of the forestry sector have emerged. These are listed below:

*Issues*

(i) Reconciliation of the need for conservation of the forest resource with the imperative to develop Guyana through the utilization of its national resources.
(ii) The formulation of equitable fiscal forest policies designed to optimize the amounts of forest revenue accruing to the government, while giving fair returns to producers and to the private sector.
(iii) The reconciliation of the rights of indigenous communities to their forest patrimony with the wider interests of the nation's citizens at large.
(iv) Whether there should be a halt to the granting of forest concessions until greater knowledge of the forest estate is acquired: its volume, composition, and rates of growth, and the impact of various intensities of logging; and until a critical mass of forestry professionals is recruited.
(v) Whether the use of certain technologies, e.g., chain-sawing, should be controlled.

*Problems*

(i) Inadequacies and inefficiencies of the Forestry Commission.
(ii) Inadequate data bases on forestry and forest industries.
(iii) Absence of adequate rules and mechanisms for land use allocation.

There is no doubt that all the issues and problems have been squarely and frontally tackled: the Forestry Policy Statement has laid down procedures for resolving them. Furthermore, the policies that are prescribed in the document, if followed, will assist greatly in overcoming the problems that have been identified. It should be emphasized that it is not being implied here that the issues have been resolved and the problems examined surmounted. What is being asserted is that mechanisms for resolving and overcoming them have been put in place.

As shall be described later, there was a comprehensive assessment by those responsible for policy formulation of the issues and problems which currently faced the forestry sector and those which were likely to hinder its development in the future.

## Policy Formulation Processes

The processes which were utilized in formulating Guyana's forest policies will be discussed later, together with the experts, interested groups and agencies that were involved in the formulation of the policies, will be described.

## Implementation

The main instruments which have been prescribed in the document for the implementation of the policy are legislative, administrative and financial.

Although the forest policy statement was ratified by Cabinet only in early November, it had been approved in principle by the Minister some time before. Accordingly, steps were taken, somewhat expeditiously, to draft the relevant forestry legislation. Indeed, running concurrently with the forestry policy formulation exercise, was a project on forestry legislation.

Under the Guyana Forestry Commission Support Project, which is being implemented with assistance from the Department for International Development of the United Kingdom, a consultancy was financed for a review of forestry legislation. The consultants were required, inter alia, to review the legislation relating to forestry, and also to analyse multilateral and bilateral treaties and other agreements relating to forestry to which Guyana is or may become a party, so as to identify the country's international obligations.

A draft Forest Law has already been produced, and has been reviewed by the Policy Steering Committee which had been established to prepare the Guyana National Forest Policy Statement. The new law takes into account all the relevant recommendations made in the Guyana National Forest Policy Statement. It encompasses clauses on Forestry Planning, Forestry Conservation and Protection, Forestry Production, Forests on Amerindian and Private Lands, Forest Revenues, Forestry Education and Research, Forest Information, and Forest Administration. The drafting of regulations in support of the new law is well-advanced.

The administration of the Guyana Forestry Commission has also received special attention in order to implement the policies that have been established in the Policy Statement: a new administrative structure has been proposed; a review of the job descriptions of all posts has been completed; and a process for implementing the new organization structure and the new job descriptions has been approved by the Board of the Guyana Forestry Commission. The number of posts proposed for the new structure has been increased from 193 to 257. When these proposals are put into effect by the Government, which has accepted them in principle, a serious obstacle to the development of forestry in Guyana, i.e. the inadequacy of the number of professional forestry staff, will be overcome. Moreover, a scholarship programme, for both overseas and local training, is already being implemented.

## Constraints

This is not to imply that there are no constraints to the full realization of the objectives of the policy. Indeed, although in the medium-term, a critical mass of trained forestry personnel might become available to the Forestry Commission, the combined experience of these newly trained officers would be minimal. Guyana would perhaps, therefore, be in need of assistance in the form of experienced professionals.

In addition, it is more than likely that many of the specialist areas in forestry might be manned by officers with less than the necessary experience. Here again, short-term assistance might be required.

This type of aid will be particularly important in the fields of silviculture and mensuration if the data that are essential for the practice of sustainable forestry are to be available.

There is another set of factors which gives cause for concern, mainly because they are outside of the control of the Forestry Commission. As shall be described, the overall responsibility for the conservation of biodiversity and of ecosystems has been assigned to other agencies. The levels of efficiency at which these authorities function, and their effectiveness, will obviously influence the attainment of the objectives of the Forestry Policy.

Moreover, the economic benefits that are to be gained through the practice of sustainable forestry are greatly dependent on the Government's investment and fiscal policies. The types of policies that are put in place by the Government, outside of the forestry sector, are, therefore, a potential area of constraint.

### *Beneficiaries*

If the aims that are embodied in the Forest Policy Statement are met, the Guyanese nation as a whole would benefit, through the conservation both of forest ecosystems and the nation's forest patrimony for present and future generations; through the socio-economic activity which would be generated; and through the additional revenues which would accrue to the state.

### *Linkages with National Goals and Macro Policies*

The Policy Steering Committee which drafted the Guyana National Forest Policy Statement was fortunate to have at its disposal, at the time when it was preparing its own document, a draft of the Government's National Development Strategy.

It took this into account when finalizing the Statement. In doing so, it paid special attention to the national development objectives; the principal thrust of the strategy; and the macro-economic, social, and infrastructural policies. Perhaps not surprisingly, it devoted much of its time to the policies relating to the forestry sub-sector, as part of its general scrutiny of the Government's policies for the productive sectors. The Committee attempted to ensure that there was no conflict between its proposals and those of the Government's wider national strategy. However, when it appeared to the Committee that the Government's views were not compatible with its own more specialized considerations, it so informed the Government which, more often then not, accepted the Committee's position.

### *Mechanisms for identifying, considering and coordinating linkages*

The Commissioner of Forests is obliged to attend a weekly meeting of the Natural Resources and Advisory Committee. This Government body, which is chaired by the Adviser to the President on Science, bears the responsibility for identifying linkages and overlapping and conflicting issues, and of discussing and resolving them.

## Environmental Policy

In 1995, the Government of Guyana passed a piece of legislation, entitled the Environmental Protection Act, which is of tremendous significance to the practice of forestry in Guyana. Although no formal statement of the Government's policy on protecting the environment was published, the Act itself both enunciates the country's policy and prescribes the means of implementing that policy.

## The Content of the Environmental Policy - Arrangement of Document

The Act, in which the policy is subsumed, is divided into nine Parts and five schedules. Part I is devoted to such preliminary matters as the title of the Act, and the interpretation of certain words, phrases and concepts that are contained in it. Part II provides the legal basis for the establishment of an Environmental Protection Agency, describes its functions, and lays down the important rule that all other persons or authorities that are vested with power in relation to the environment shall henceforth defer to the authority of the Agency. Part III deals with the administrative arrangements for the Agency, while Part IV is exclusively concerned with environmental impact assessments: the requirements for such assessments, the means of approving or rejecting projects, and the necessity for obtaining environmental clearance as a condition for development consent. Part V deals with the prevention and control of pollution; Part VI with financial assurance, and Part VII with investigations, prosecutions and civil proceedings. Part VIII sets out the terms of reference for the establishment and jurisdiction of an environmental appeals tribunal, and. Part IX provides for the formulation of regulations, acts that bind the state, and ethical considerations. Details of the composition of the Agency, the Board of Directors of the Agency and the Environmental Assessment Board are spelt out in the Schedules, which also provide for the imposition of penalties.

## Objective

The policy may be gleaned from a statement which is contained within the Act itself, which is entitled "An Act to provide for the management, conservation, protection and improvement of the environment, the prevention or control of pollution, the assessment of the impact of economic development on the environment, the sustainable use of natural resources and for matters incidental thereto or connected therewith."

The country's environmental policy objective, as expressed in the Act, is the effective management of the natural environment so as to ensure conservation, protection, and sustainable use of the country's natural resources.

## Administration

In this Part of the Act an Environmental Protection Agency is established. Of particular importance is Section 7 which states that the "Agency may delegate any of its functions or powers ... to a member of the Board of Directors, any officer of the Agency or to any other person".

Indeed, the Agency has already delegated to the Guyana Forestry Commission, those powers and functions which would enable the Commission to implement the policies that are contained in the new Forest Policy Statement.

## Environmental Impact Assessments

The Act lays down that a developer of any project which may significantly affect the environment shall apply to the Agency for an environmental permit. Before such a permit is granted the Agency may demand that an environmental impact assessment be carried out by an independent and suitably qualified person approved by the Agency. Members of the public, who at that time must be alerted to the intentions of the developer, may make written submissions to the Agency concerning those questions and matters which they require to be answered or considered in the environmental impact assessment. The Agency is empowered to rule on the assessment after its submission, and may approve or reject the project. If approved, an environmental permit, which is a precondition to development consent, is issued. The review of the assessment is to be made by an Environmental Assessment Board.

Logging, forest road construction, and the establishment of forest industries would require environmental impact assessments.

## Policy Review - Character of the Document

Because there was general national consensus that the country's natural resources should be utilized in a sustainable manner and that its environment should be protected; the Government considered it unnecessary to issue a policy statement before the enactment of legislation. It, therefore, decided to subsume the policy in an Act which, at the same time, would establish the means, parameters, and institutions for its implementation.

## Policy Originators

The Government of Guyana wishes to develop the country mainly by attracting overseas investment for the utilization of its relatively untapped natural resources. It was restrained from doing so, however, partly because of its own conclusion that such development should not be undertaken without taking cognisance of its possible impact on the environment, partly because of the exhortations of several local and international non-governmental organizations, and partly because of the pressures of bilateral donors and international agencies.

It, therefore, sought the assistance of the World Bank and the Inter American Development Bank (IADB) to prepare legislation which would not only embody the policies of sustainable development agreed upon, but would also provide the legal and institutional framework for the implementation of the policy. The World Bank also agreed to assist in the establishment of the institutions provided for in the Act.

## Policy Makers' Intention, Issues and Problems

The Policy Makers' intention has already been described in preceding sections. The issues and problems are similar, in large measure, to those which were examined when considering the country's forest policy statement. Indeed, these issues and problems pervade all activities which pertain to the development of Guyana's natural resources.

## Policy Formulation Processes

These will be discussed in greater detail under Processes and Mechanisms.

## Implementation

The Agency has already been established, and a critical mass of officials appointed. The relevant Boards are also in place. These are serviced by a number of officials specifically appointed in accordance with the provisions of the Act. A full complement has not yet been recruited, however. The Agency has also delegated some of its powers to existing government authorities, such as the Guyana Forestry Commission and the Guyana Geological Commission.

The Government is receiving World Bank assistance in the preparation of the organizational structures of the requisite services.

### *Constraints*

The major constraints are the unavailability of the type of personnel that are required to occupy the scientific, technical and managerial positions that have been established to monitor the implementation of the policy, and the inexperience of those who have already been appointed. These constraints apply not only to Government sector posts, but are also relevant, perhaps even more severely, to that category of 'independent' persons who are required, under the Act, to undertake the environmental impact assessments.

### *Beneficiaries*

All Guyanese are likely to benefit if this Act is effectively implemented.

### *Linkages with national goals and macro policies*

The aims and objectives of this Act are in conformity with the objectives and macro-policies enunciated in the National Development Strategy.

## 3. EMERGING AND CURRENT ISSUES AND PROBLEMS

## Issues

### *(I) Sustainable Forestry*

All of the stakeholders who were interviewed in the course of preparing this report, expressed the view that there was general agreement that the forest resources of Guyana should be sustainably managed. There were significant differences, however, regarding the nature and pace which should be followed in applying the principles of sustained management. The representatives of a vociferous, but influential non-governmental organization, the Red Thread, accepted the proposition that tropical forests could be managed in such a way, that ecosystems may be conserved, biodiversity sustained and forest goods supplied in perpetuity. They argued, however, that the attainment of this state of grace depends not only upon a body of scientific and technical information which Guyana does not possess, and was incapable of obtaining in the foreseeable future, but that even if such data were available, the Guyana Forestry Commission does not have the human, financial and physical resources to undertake the necessary investigations and research, to formulate acceptable regulations and codes of practice, and to monitor the performance of those engaged in forest production. Until such research is undertaken, and until a minimum amount of resources is obtained, the forests should remain inviolate. This view is shared by one of the minor political parties, the Working People's Alliance.

A few members of the Forest Products Association (a body which represents the interests of concessionaries, and forest industrialists) take a position which is diametrically opposed to that of the Red Thread. They assert that Guyana is so poor and undeveloped that every effort should be made expeditiously to utilize all its natural resources. In any event, they claim, the evidence is clear that forest exploitation damages tropical forest ecosystems very insubstantially. and that very few ecosystems in Guyana are brittle. They, therefore, insist that with the imposition of basic safeguards, such as minimum girth or diameter felling restrictions, concessions should be allotted.

It is fair to say that the majority of the members of the Forest Products Association do not take this extreme position. They share the view of the Government, the major opposition parties and British Aid

Authorities that sustainable forestry development can be ventured into, in the short-term, only if a number of safeguards are put in place. These are:

1. increasing the minimum allowable tree size for felling;
2. lengthening felling cycles; and
3. establishing a Forestry Commission with sufficient staff and equipment to enable it to patrol and monitor the forests.

To this end, the Government, since 1996, has frozen the issuance of new concessions. However, on the advice of the British, it has instituted a type of forest tenure, exploratory licences, that is new to Guyana. Applicants for forest concessions are given temporary licences to enable them to explore certain forest areas in order to determine the feasibility of operating in them. It is hoped that by the time results will have been obtained with regard to these exploratory licences, the new Forest Act will have been enacted, the new Forest Regulations promulgated, a new code of conduct issued and most important, a critical mass of well-trained, adequately equipped forestry officers, within a reorganized Forestry Commission, will be available.

British Aid, the Forestry Commission, the Guyana National Resource Agency, and the planning unit of the Ministry of Finance have all prepared background papers on this topic. The matter has been discussed in Cabinet.

The studies which have been undertaken defined the problem, and identified various courses, with their consequences, which the Government might pursue. These papers were submitted to the drafters of the Forest Policy Statement.

### *(ii) The Formulation of Equitable Fiscal Policies for Forestry Development*

This is an issue which promises to bedevil Guyana's forest administration for some time. It is considered an issue because it appears to be incapable of being resolved to the satisfaction of all the parties that are involved.

The main protagonists are the Forest Products Association and the Government. The Government argues that prevailing royalty rates and stumpage fees are too low, have been established too long ago, do not take account of the massive devaluations of the country's currency which have occurred, and of the high rates of inflation which have been obtained over the years. The Forest Products Association alleges that Guyana is a high-cost producer of timber: yields of commercially marketable timber per unit area are low, and because of the inadequacy of the national road infrastructure, extraction costs are inordinately high for the concessionaire has to construct what would be national roads in more favourably endowed countries. They concede that their might be a case for a small increase in forest taxation, but argue that the proposals of the Government are too extreme.

The subject has been studied by foreign consultants brought in by British Aid, and by Government economists. Their conclusions suggest that the Government's proposals are realistic. The Forest Products Association has undertaken its own assessments and have produced their own costs and returns which, perhaps not surprisingly, differ from those obtained by the Government. Moreover, the Forest Products Association challenges the methodology and the data used in the Government's investigation.

The Government has decided to press for increased payments, but the imposition of the new rates has been challenged by the Forest Producers Association in the Courts.

### *(iii) Rights of Indigenous Communities*

The representatives of most of the groups which speak for the Amerindians of Guyana argue (a) that specific amounts of forest land should be reserved for Amerindian communities to enable them to pursue their traditional ways of extracting from the forests; (b) that other areas should be reserved for

them to permit them to engage in modern forestry; and (c) that lands, including forested land, should be set aside for their future expansion.

The Amerindian Ministry, which is headed by an Amerindian, with a technical adviser who is himself an Amerindian, and who was a member of the Policy Steering Committee which drew up the Guyana National Forest Policy Statement, does not share these views in their entirety. The Government has made provision for additional lands to be allotted to Amerindians (though not necessarily forested lands), and for the legalization and registration of their existing and future holdings. The Policy Statement also empowers the Forestry Commission to advise Amerindian communities, at their request, on the sustainable management of their forests.

All the political parties share the views of the Government. However, some foreign non-governmental organizations are pressing the local Amerindians to pursue these matters further. They link their support of the rights of Amerindians to their objection to the granting of forest concessions to overseas forestry investors.

The Government and the opposition parties, with the exception of the Working People's Alliance, are of the opinion that the peak of the protests and objections has long since passed.

### *(iv) The control of the use of technology*

This issue was raised by the Forest Products Association which specifically requested that the Government should ban the use of chain saws in the forest for the sawing of logs into boards. The Association argued that such a practice was not only wasteful of the country's forest resources, but also encouraged the smaller Guyanese logger to encroach with impunity upon the leases of the larger concessionaires. The economic planners in the Ministry of Finance opposed the request in principle. They were of the opinion that such a move would be tantamount to controlling and regulating the use of technology. They stated that the market should decide what technology should be utilized in any particular industry, that it was the Government's policy to minimize its interventions in the operations of the national economy, and that what was needed was more de-regulation, not an increase in regulation.

The Forestry Commission conducted a study on the matter and recommended that the use of chain saws should be undertaken only under licence.

At the same time, the Forestry Commission proposed that it should be given the power to decide on the capacity of wood conversion mills to be established in Guyana, and the types of mills to be utilized. The Commission wished, it stated, to ensure that there was no over-capacity in relation to the resources of the country, and also to standardize the use of equipment. This would save foreign exchange among other things, they claimed. This also met with objections from the Ministry of Finance, for the same reasons it advanced against the regulation of chain sawing.

Both matters were referred to the Policy Steering Committee which recommended as follows:

a. Chain saw lumbering shall be confined to areas designated by the Guyana Forestry Commission.
b. The number and types of forest-based industries established shall be consistent with the capacity of the nation's forests for sustainable management.
c. The size, scope and scale of the forest sub-sector shall be related to the availability of timber and non-timber forest resources from sustainably managed forests.

These recommendations were accepted by the Government and are now enshrined in the country's forest policy. The Government accepted the argument that it was necessary to regulate the exploitation of the nation's forests; that if there was excess capacity in the forest industries sub-sector the temptation to over-cut, for example, might be irresistible; and that the type of conversion equipment might influence exploitation practices. In other words, the sustainability of the forest resource is inextricably linked to timber processing methodologies and techniques.

## Problems

### *(i) Inadequacies and inefficiencies of the Forestry Commission*

It is generally accepted in Guyana that the Forestry Commission is under-staffed and ill-equipped. Moreover, it is believed that the quality, basically in terms of training, of the staff, leaves much to be desired. These defects were confirmed by a study undertaken under the aegis of the British Government's aid programme on forestry. As a result, more staff are being recruited, the Commission is being restructured, and more citizens are being trained in forestry. It is hoped that these reforms would enable the Forestry Commission to develop the capacity for managing the forest resources of Guyana in a sustainable manner.

### *(ii) Inadequate data bases*

This is a real problem which the Forest Policy Statement addresses by clearly enunciating that a data base, which would contain comprehensive and up-to-date information on national forest resources, including market intelligence, as well as results of local and international research, should be established and maintained. The Guyana Forestry Commission, with the assistance of British Aid, is already making arrangements for the establishment of such a data base.

### *(iii) Land Use Allocation*

One of the problems which beset the practice of sustainable forestry in Guyana is the plethora of agencies which administer different types and classes of land, and their overlapping responsibilities. Perhaps more fundamental, is the absence of a comprehensive capacity classification of the nation's land resources, and the non-existence of any sort of land-use plan. The Government, in general, and the Guyana Forestry Commission, in particular, are aware that forest policies cannot be formulated in a vacuum, and should be based on sound land use plans.

The Government has established a Land Use Committee to resolve the problems of overlapping jurisdictions, and the allocation of Government-owned land to different types of land uses. The Forest Policy Statement itself begins with a chapter on Land Use Policies and Strategies. It states that the nation's forest policy shall be an integral part of a comprehensive land-use plan, which shall be based on land-use policies that recognize the conflicting but legitimate interests of different stakeholders.

# 4. PROCESSES AND MECHANISMS OF POLICY FORMATION

## National Forest Policy

### *Issue Search and Agenda Setting*

As soon as the Government of Guyana decided that the changing economic, social and political environment of the country necessitated the formulation of a new forestry policy, it engaged, with the help of British Aid, a consultant. This expert on forestry policy formulation was required to research the current status of the sector, and to identify the issues and problems which should be addressed and considered in the process of formulating the new policy. The only directives which were given to the specialist were that special attention should be paid both to Guyana's economic situation and to the environmental aspects of forestry. In this regard, the decisions taken at the Earth Summit in Rio de Janeiro, in 1992, should be taken into account.

The consultant presented a report in which he listed 13 areas which needed to be studied in greater detail. These were (i) determining the roles of natural sector organizations in Guyana; (ii) redefining the forest estate; (iii) planning for forest sector development; (iv) establishing the parameters and conditions of concessions and felling permissions; (v) assessing various types of forest revenue and fee structures; (vi) conserving the natural resources of the country; (vii) education and training in forestry, (viii) research and information on forestry; (ix) small-scale logging; (x) marketing; (xi) developments in the wood processing sector; (xii) land use (including competing and alternative land uses); and (xiii) forestry policy in relation to national development.

## ***Deciding on the process to be followed***

At this point a professional forest officer on the staff of the Guyana Forestry Commission was appointed Policy Coordinator. It was also decided that position papers on the first five of the topics listed above would be written, and that background papers on the remaining eight would be prepared: The position papers were to be written by the staff of the Forestry Commission or by consultants hired by them, while the task of preparing the background papers was assigned to Guyanese experts in relevant disciplines. These specialists were mainly selected from the University of Guyana, and the private sector. However, in a few instances, officials from the Guyana Public Service were asked to write or contribute to papers in their private capacities.

The Policy Coordinator was required, inter alia, to ensure that both sets of papers were prepared to an established schedule.

## ***Defining Issues and Establishing Objectives and Priorities***

The authors of both sets of papers were requested to provide, in their reports, relevant background information on the various subjects, define the issues wherever the topics demanded such definition, identify objectives, list and analyse the various options that were available in the pursuit of the objectives, and recommend the option considered to be most appropriate in the national interest.

On completion, the position papers were circulated within the Guyana Forestry Commission for comment. The Heads of Sections and other relevant staff then met in a discussion forum in which the papers were thoroughly reviewed. The papers were then either accepted as presented, or amended, or completely rewritten.

A more elaborate review procedure was undertaken for the background papers. Panels of three stakeholders, who were deemed by the Forestry Commission to be representative of the interests addressed in the particular paper, were selected as members of the review team. An expert on the topic to be discussed, but who had not participated in the preparation of the paper, was asked to be chairperson of the Panel. The work of each of these teams was supported and serviced by the Policy Coordinator.

Each panel was empowered to change or rewrite the papers. The panels were then required, at the end of this phase of the exercise, to identify not more than 12 other stakeholders to review their findings in a discussion forum. After these discussions, papers were then adjusted, as necessary, and submitted to the Forestry Commission.

The methodologies used in option analyses by those who prepared the original background and position papers varied from subject to subject. In general, however, the appraisals and comparisons of various options were not based on quantitative assessments, basically because their use was not considered relevant or important. The methodology followed in the analyses, which were for the most part rigorously executed, depended upon the expertise and experience of those who participated in the exercise.

A Policy Steering Committee was then established to analyse all the information that was obtained from the various review committees. This committee comprised a forester with international experience, who had taught forest policy and law at university level, and who holds a doctorate in land

use planning; a representative of an environmental non-governmental organization who holds a doctorate in biology, and who had been a member of the committee which established the Environmental Protection Agency; an educationist with a doctorate in science, who had been Vice-Chancellor of the University of Guyana; a representative of the private forest industries sector, with considerable experience in marketing; a representative of the indigenous peoples of Guyana, who holds a masters degree in anthropology; and a professional forest officer from the Forestry Commission with special expertise in forest industrialization.

This Policy Committee prepared the first draft of the Guyana National Forest Policy Statement. This was then circulated to 50 individual representatives of stakeholders for discussion within their respective groups.

Open discussions were then held at three national fora, to which the general public was invited.

The Policy Committee, in the light of these several meetings and discussions, revised its original draft and then submitted the revised version to the Chairman of the Board of the Guyana Forestry Commission. The document was then reviewed by the Board, which then forwarded it, with their comments, to the Minister responsible for forestry. The Minister then submitted it to Cabinet where it was approved, with two minor amendments.

### *Policy Implementation, Monitoring and Control*

The Forestry Commission has already put in place a mechanism for ensuring the implementation of the policy. It has listed the necessary steps to be taken to implement the policy, and has assigned personnel for initialling and undertaking the processes of implementation and for monitoring performance in implementation.

Forest legislation and regulations have already been drafted; a new administrative structure has been approved; rules of conduct for concessionaires have been drawn up; and steps are being taken to improve the collection of basic information. The important point is that systems have been established for implementation, monitoring and control. It is too early to judge their effectiveness.

### *Evaluation and Review*

It would be premature to express a view as to whether the policy has been effective in achieving the impacts desired. However, although no specific machinery has been put in place to evaluate the influence of the policy on production and conservation, the Forestry Commission, the Environmental Protection Agency, the Ministry responsible for Forestry, and the Planning Division of the Ministry of Finance, are aware that it is their inherent duty, collectively and individually, to do so.

## Environmental Policy

### *Issues Search and Agenda Setting*

In public discussions throughout the country, in debates in Parliament, in newspaper articles, and in several letters to the editors of the main newspapers, the main issue had been defined and agreed upon: the necessity to optimize the socio-economic development of Guyana while, at one and the same time, protecting the country's environment. Moreover, the Bretton Woods institutions, the IADB, and Guyana's major bilateral aid donors had not only similarly identified the issue, but had prevailed upon the Government of Guyana to formulate a relevant policy, enact legislation, and establish administrative structures and procedures which would lead to the attainment of the twin objectives of economic growth and environmental conservation.

It was, therefore, considered unnecessary to establish any special system for issue search and agenda setting.

### *Deciding on the process to be followed*

The process to be followed was decided in separate negotiations between the Government of Guyana, on the one hand, and the World Bank and the IADB on the other. It was agreed that consultants would be financed by these international organizations to draft relevant legislation which would incorporate the policy consensus and to recommend administrative structures and procedures which would give effect to the policy and law.

### *Defining Issues and Establishing Objectives and Priorities*

Although it was agreed that the issues were already clearly defined, and that the broad objectives and priorities had also been unambiguously established, the procedures decided upon, and followed by the consultants, sought to confirm the consensus, re-define priorities in a more detailed manner, and ensure that the major stakeholders were given formal opportunities to express their views on this particular aspect of the country's development.

The consultants accordingly sought the views of the relevant government ministries and departments, including all those with some responsibility for formulating and implementing policies in various aspects of land utilization; a number of non-governmental organizations; relevant faculties, departments and staff of the University of Guyana; major political parties; and representatives of the private sector engaged in forestry, mining, tourism, industry and agriculture.

Draft legislation, based in part on these consultations, and in part on the expertise of the experts was then prepared, and submitted to the government for comment and approval. When agreement was reached between the International Financial Institutions and the Government of Guyana, the Bill was laid in Parliament where it was then debated. All the Parliamentary Parties supported the Bill in principle. The Opposition, however, suggested amendments, not to the objectives and main thrust of the legislation, but to such areas as the composition and powers of the various Boards, and the penalties to be incurred through breaches of the law. Most of the proposed amendments were accepted by the Government, before final passage of the Act.

### *Policy Implementation, Monitoring and Control*

As has been described, the Act itself provides the means of implementation, monitoring and control. Indeed, many of its provisions are already being implemented. In this connection, it is noteworthy that the Government, acting on a recommendation of the World Bank, has procured a report which lays down the procedures to be followed in establishing protected areas, outlines the rudiments of appropriate legislation and suggests the organizational structures which ought to be put in place to ensure that vulnerable ecosystems, critical watersheds and important biodiversity areas are protected.

### *Evaluation and Review*

There are built-in evaluation and review procedures within the Act itself, the procedures to be followed with regard to environmental impact assessments being the main evaluation and review mechanisms.

## 5. GUYANA'S FORESTRY POTENTIALITIES

Although Guyana's total estimated forest area is 168 million hectares, or more than 75 percent of the country's total land area, the contribution of the forestry sector to the country's socio-economic development has been far from significant.

In 1994, total employment in forestry and forest industries was 20,000 and total roundwood production was 5,000,000 cubic metres. Export earnings were about US$25 million, and the contribution of the forestry sector to GDP was 4.42 percent.

Even this relatively dismal performance of a sector with such a plenitude of resources was a great improvement on what was obtained in the period up to 1987 when the forestry sector's share of GDP was just over 2 percent, and export earnings were about US$8 million.

In short, export earnings from the sector was tripled between 1987 and 1994. These upward trends in production and export earnings are likely to continue in the foreseeable future. Indeed, export earnings for 1995 were US$34 million and for 1996 the estimates lie between US$38 and US$43 million. There has been a corresponding, proportionate, rise in production. Employment in 1996 in the sector is estimated to be of the order of 32,000.

This improved performance is almost entirely due to the awarding of a concession to a foreign company, the Barama Company Ltd, in 1992. Since then three more agreements have been signed with foreign investors. In addition, four exploratory licences, which permit investors to survey specified forest areas, conduct forest inventories and perform feasibility studies, have been issued. When the concessions for which agreements have been signed come into full production, by the year 2000, it is forecast that employment in the sector would be well above 70,000 and that export earnings would be in the vicinity of US$75,000.

These forecasts are based on the increasing trend of production by foreign companies only. However, if existing local companies are modernized so that productivity is increased and quality enhanced, and if their marketing practices are improved, the contribution of the forestry sector to Guyana's development would be even greater.

The forecasts of the increasing contribution to GDP by the forestry sector take into account the Government's projections of increases in production in other sectors of the economy.

Moreover, all the political parties in their public statements, and in their manifestos, have affirmed that they intend to offer the same incentives to local producers as are now provided to foreign investors. It appears, therefore, that the possibility of improving production practices of local entrepreneurs would be greatly increased in the near future.

The foregoing analyses are based only on production for the local market and for the traditional export markets in Europe and North America. They do not embrace the more accessible markets in the Caribbean. The sad fact is that although Guyana is a member of the Caribbean Community, although the country is by far the largest producer of wood in the Community, and although it is the best endowed with forest resources, its sales in the Caribbean are most insignificant. This is due in part to the relatively poor quality of Guyana's wood products, and in part to the Caribbean's seeming preference for low density woods. The main reason for the failure to penetrate the Caribbean market, however, lies in the poor marketing practices of the local forestry industry. It is important to note, in this regard, that one of the strategies laid down in the National Forest Policy Statement is the provision of market intelligence, and assistance in marketing, to local timber producers.

It is likely, therefore, that the contribution of the sector to Guyana's socio-economic development would be even greater than is now envisaged.

Because of Guyana's overall low population density, and because most of the country's small population does not live in the forests, but on developed coastland, the possibility of massive encroachment of the forest estate, for agricultural production and other forms of land use, is minimal. The services which the forests provide, such as regulating and purifying water supplies, and reducing erosion, are not likely, therefore, to be much affected in the ensuing years.

A caveat must, however, be entered in this regard, with respect to mining. If the Government's plans come to fruition, it is likely that there would be greatly increased activity in the mining sector in the next decade or so. As Guyana's mineral deposits are almost exclusively located in the areas occupied by its tropical high forests, the potential for ecosystem damage is heightened. As has been pointed out,

legislation has been enacted and institutions put in place to guard against this possible eventuality. Nevertheless, it is important that there be vigilance in the mining areas, and that there be established, between the Geological and Forestry Commission, an arrangement for the monitoring of mining activities in forest ecosystems.

This discussion of Guyana's forestry potentialities has not taken into account the rewards that might possibly accrue from ecotourism.

In 1992, the Government launched a programme of ecotourism, with the country's primary forests being one of the main attractions. This programme was endorsed and expanded in the recently published National Development Strategy. It is as yet too early to assess the possible impact of these plans on the country's development. Moreover, a methodology has not yet been devised in Guyana for measuring the contribution of the forests to this aspect of its socio-economic growth.

## 6. INSTITUTIONAL ARRANGEMENTS

Guyana is a secular democratic state, the executive authority of which is vested in the President. His principal assistant in the discharge of his executive functions is the Prime Minister, who is appointed by him.

Guyana's Cabinet, which consists of the President, the Prime Minister, the Vice-Presidents and such other Ministers as the President may appoint, aids and advises the President in the general direction and control of the Government of the country. The President assigns to Ministers responsibility for the business of the Government of Guyana, including the administration of any department of Government.

At present, the general responsibility for the business of forestry is assigned to the Senior Minister of Agriculture who is in overall charge of the Ministry of Agriculture. However, specific authority for forestry is vested in a junior Minister, within the Ministry of Agriculture.

In 1979, a body corporate, the Guyana Forestry Commission (GFC), was established by section 3 of the Guyana Forestry Commission Act. The GFC, which is a semi-autonomous agency, advises the Minister on the formulation and implementation of forestry policy, and performs such acts as are necessary to execute the policy. More specifically, the Commissions functions embrace carrying out forest resources inventories; undertaking studies and preparing plans and codes of practice for the conservation and sustainable development of the forests of Guyana and for the development of forest industries; protecting and conserving forests; managing wildlife; granting exploratory permits, logging concessions, and forest licences; regulating the production and marketing of forest products, imposing, collecting and recovering all forest revenues due to the State; enforcing the conditions of all forestry agreements, licences and permits, undertaking and promoting forestry research; and providing extension services.

The GFC collects revenues on behalf of the Government, and on its own behalf, according to an agreed formula. It utilizes the resources which it has collected on its own behalf to provide for its recurrent expenditure, and for part of its capital costs. The GFC is', therefore, to a large extent, self-financing.

The Commission is governed by a Board of Commissioners which oversees the implementation of forest policy by the staff of the GFC, and the implementation of approved forest sector development plans. It also decides, on the advice of the chief technical forestry officer, the Commissioner of Forests, on the allocation of concessions and the delineation of boundaries. Recommendations and advice to the Minister responsible for forestry are provided through and by the Board of Commissioners.

The Board, which is appointed by the Minister, comprises representatives of relevant government ministries, representatives of the Forest Products Association, scientists, economists, and financial experts.

The staff of the GFC is headed by a Commissioner of Forests who is supported by a number of trained professionals and technicians, and administrative personnel. The Commission is divided into six divisions: human resources, forest monitoring, forest resources management, policy and planning and forest products. Each division is sub-divided into sections. Thus the Human Resources Division is sub-divided into the Personnel and Training Sections; the Forest Monitoring Division comprises a Monitoring Section and a number of divisional offices which are located in various regions throughout the country; the Forest Resources Management Division embraces inventory, silviculture, and engineering sections; in the Policy and Planning Division are the Economics and Information Sections; and finally, in the Forest Products Development Division are located the Utilization, Production and Marketing Sections. There is, in addition, a Commission Secretariat, with the same status as the Technical Divisions. This includes the Accounting and Administration sections.

The planning, organization, coordination, production, control and financing of all aspects of forestry, except those directly related to the conservation of biodiversity, and the protection of critical watersheds, are the responsibility of the Minister responsible for forestry and the Guyana Forestry Commission.

This relatively simple structural and organizational arrangement becomes complicated, however, when the mechanisms for formulating and implementing policies on land use, environmental protection, and general industrial development are considered.

As we have seen, an Environmental Protection Agency has been established to formulate policy on all aspects of environmental protection, and to monitor the implementation of such a policy. Moreover, as has also been noted, the Environmental Protection Agency has delegated to the GFC all of its powers with respect to environmental protection in State Forests. The GFC, therefore, acts, in these regards, on behalf of the Agency which coordinates the policies and activities of all government organizations which operate in these fields.

Land utilization issues are examined by an inter-departmental committee which was especially established to resolve potential or occurring conflicts in this area.

Although the Forestry Commission bears the responsibility for formulating policy on forest industrialization and forest concessions, an essential element of such policy, perhaps its most important element, lies in the hands of the Ministry of Finance and the Cabinet: the Forestry Commission has little or no role in the formulation of fiscal policy, in the provision of tax holidays and incentives.

There are two further complications. There exists in Guyana an organization called the Guyana National Resources Agency (GNRA). This is essentially a hand-over from an earlier era when the President was directly responsible for natural resources, and when the GNRA was in effect, though not in name and legal status, the "Ministry of Natural Resources". The status of this Agency is, at present, uncertain. It currently undertakes analyses of various natural resources problems and issues, and tenders advice to relevant institutions. It has no line responsibilities. There is also a Scientific Adviser to the President. This position is one of great importance and influence as it is located in the President's office, and is thus able to see the entire national 'scientific' picture. The incumbent is, therefore, able to intervene, with effect, on a range of scientific matters, including forestry.

In addition, outside the Government structure, there is the Guyana Forest Products Association, comprised of representatives of the main forest concessionaries and forest industrialists, both foreign and local. This private sector organization is an important pressure group. It is also represented on the major government boards related to forestry and, as has been discussed, is frequently consulted on many aspects of forestry policy and implementation.

In the past, many Guyanese from all walks of life perceived many of the staff of the Guyana Forestry Commission to be rent-seekers. Over the last five years or so, however, this impression of untrustworthiness has disappeared, somewhat. This is due, in large measure, to the fact that the Commission's revenue and emoluments have improved because of increased forestry activity.

Unfortunately, another perception still remains. The main stakeholders are of the opinion that because of inexperience, the paucity of their numbers, and the absence of specialist training in several critical

areas, the staff of the GFC are not currently equipped, and will not be in the foreseeable future, to tackle successfully the many important tasks they are being called upon to perform. This view is shared by the political governance, public servants, forest producers and industrialists alike. Even some of the forestry officers of the Commission partake of this opinion.

The weaknesses in monitoring are mainly a function of numbers. The other weaknesses, in silviculture, ecology, forest mensuration, forest management, are qualitative and therefore not easily addressed. The Commission does not yet have a critical mass of experts, and those which it does possess, are either under-trained or inexperienced or both.

The other agencies which are relevant to the development of forestry in Guyana suffer from the same deficiencies. Indeed, the inadequacy of human resources in Guyana is one of the country's main obstacles to its socio-economic development.

These strictures apply also to the private sector. There is, in almost all the local firms, a dearth of skilled personnel.

# 7. POLICY STUDIES

## Draft Policy of 1988

Although there had been no official forestry policy statement between 1953 and 1997, a Draft National Forest Policy had been formulated by the Forestry Commission in 1988. This draft was submitted to the Minister for approval. It is understood that the matter was never raised in Cabinet.

The process followed in this 'policy study' was, first, to assign the responsibility for preparing the statement to an experienced officer in the Forestry Commission. He, in turn, requested his professional colleagues in the Commission to describe the issues which should be addressed in such a policy, and suggest ways of resolving them. The issues and suggestions were then collated, and a first draft prepared by the responsible officer. In doing so, he relied not only on the submissions of his colleagues, but also on forest policy statements which were available from other parts of the world.

This draft was refined after consultations with the professional staff of the Forestry Commission and other Public Servants.

There was neither a rigorous identification or selection of options, nor any attempt to identify the possible impact and cost-effectiveness of the measures prescribed.

Among the objectives of the policy were such bland goals as "to maintain an adequate area of forest land that can support the level of forest growing stock sufficient to meet the present needs of all Guyanese."

Perhaps of greater significance is the fact that the policy which was proposed, paid very scant attention to biodiversity and ecosystem conservation and protection.

## National Forestry Action Plan

A National Forestry Action Plan was prepared for Guyana, in 1989, as part of a general programme of forestry assistance which was organized, at that time, by the international community. The Canadian International Agency accepted responsibility for Guyana and, together with that country's Forestry Commission, prepared a series of Working Papers, which were synthesized into a Summary Report. One of these Working Papers, Working Paper No.2, was devoted to Legislation and Policy.

The methodologies which were followed in identifying and defining issues, establishing priorities, deciding on the recommendations to be made to the Government of Guyana, and formulating project

profiles are not described anywhere in the Working Paper or in any of the several documents presented to the Government.

A perusal of the Working Paper suggests, however, that all that was undertaken were reviews of the existing legislation and the 1988 Draft National Forest Policy. The Action Team seems to have accepted the policies and strategies put forward in the Forestry Commission's draft, but recognized that little or no emphasis had been placed on biodiversity conservation and ecosystem protection.

In addition to stressing that a 'final statement' on forest policy should be prepared, it therefore recommended that appropriate legislation should be formulated to establish protected areas; that an existing draft Wildlife Bill should be completed; and that the Fisheries Act should be updated.

Here again, the policy advisers appeared to be adverse to a rational and systematic approach to forestry policy formulation. They, therefore, did not employ a process which necessitated the collection and analysis of data, the consideration and selection of options, and the establishment of priorities.

## Forest Policy Background Papers

In 1996, the Government of Guyana, with the assistance of the United Kingdom, commissioned a number of papers, the specific objective of which was the provision of background information to be utilized in the formulation of a national forestry policy.

Papers on the following topics were requested: Conservation of Natural Resources; Education and Training; Forestry Research and Information; Small logging, Chainsaws and Mobile Operations; Marketing; Wood Processing; Land Use; and Forest Policy and National Development.

All the papers were prepared by consultants. An analysis of the one which was prepared on Conservation of Natural Resources would illustrate the methodology that was followed.

The paper reviews a series of national and international documents in order to place the conservation of Guyana's natural resources within both a global and local contest. For example, it emphasizes the recommendations of the Environmental Conference held in Rio in 1992; it stresses that efforts to formulate a policy of natural resources conservation are required by the country's Constitution; it examines current Government policies on natural resources development; it assesses Guyana's obligations in respect of international and regional treaties; and makes reference to the prescriptions of the National Forestry Action Plan.

The paper then identifies and discusses the problems and issues to be addressed; the allocation and use of forest resources; the regulations of harvests; monitoring biodiversity protection; environmental degradation and the coordination of actions.

It next suggests a number of policies, identifies the strategies which would have to be followed in related sectors, and makes recommendations for their inclusion and emphasis in the final consolidated policy statement.

Throughout the paper options are discussed and prioritized. The sources of information were many and varied: government files, national and international publications, studies commissioned for the exercise, national and international legislation, and the forestry policies of other countries.

The seven other background papers were all presented in the same manner, and in all of them the methodologies employed were broadly similar. Analyses was of prime importance. The sources of information varied with the topic, however. For example, publications of a more academic nature were consulted with regard to education and training, and research and information; while sources of a more technical nature were utilized in respect of logging, marketing and wood processing.

## Forest Policy Position Papers

Five position papers were prepared by the Guyana Forestry Commission in 1996, with the objective of providing the drafters of the country's national forest policy statement with information and analyses which were considered to be both basic and essential in formulating Guyana's forest policy. The papers were on (i) the role of natural resources sector organizations; (ii) definition of the forest estate; (iii) planning for forest sector development; (iv) concessions and felling permissions; and (v) forest revenue and fee structures.

Each of the papers described the existing situation and the procedures and methodologies for each of the topics addressed, assessed their strengths and weaknesses, discussed analyses which had been made by other government departments and agencies; and then ended with specific recommendations.

In certain instances, as in the case of forest revenues and fee structures, consultants were hired to present the specialist's view. As in the 'Background' papers, the approach was analytical and objective.

## National Development Strategy

In 1996, the Government of Guyana published a six-volume document on the national development strategy which would be followed in the next ten years.

The strategy was formulated through the participation of experts from both the public and private sectors. The Ministry of Finance had overall responsibility for its preparation. However, other government ministries and agencies played important roles. Most of the work was undertaken by 23 technical working groups which comprised over 200 individuals from Government, NGOs, the private sector, and the University of Guyana. They met about 300 times. Reviews of the first draft were made by representatives of public groups. Resident experts from international and bilateral agencies, who resided in Guyana, also contributed according to their specialities.

The National Development Strategy covers four broad areas: macro-economic policy, the social sector, the productive sector, and the infrastructural sector. The specific parts of the document which are directly relevant to forestry policy in Guyana are Chapters 2 and 4 in volumes I, which deal with National Development Objectives and key constraints to Guyana's development, respectively; Chapter 22 in Volume III, which describes Amerindian Policies; and Chapter 30 in Volume IV which concentrates on Forest Management.

The objectives, policies and strategies which pertain to forestry in the National Development Strategy have been adopted in the country's Forest Policy Statement, which has already been described. Indeed, the position and background papers that were prepared by the Guyana Forestry Commission for the forestry policy formulation exercise were available to the National Development Strategy committees. Moreover, many of the experts, who assisted in the formulation of the country's forest policy, were themselves involved in the development of the National Development Strategy.

The various committees, which were key players in the preparation of the strategy, either wrote background papers themselves, or had the assistance of experts from Government or the private sector, in preparing them. These papers almost invariably assessed current situations, established a range of targets, suggested different ways of attaining them, and selected priorities for doing so. Reports, which stated whether the recommendations were controversial or not, were then prepared for further discussion in a wider group. It was only at the end of an interactive process that decisions in so far as the committees were concerned, were made. These were subject to further reviews by the populace at large. It may, therefore, not be surprising that the document is still in draft.

However, there is little doubt that the approach successfully combines a technical and professional approach with a great measure of participatory democracy.

## Report on Forestry Law and Policy

Late in 1995, the British Government engaged a specialist in legislation to advise the Government of Guyana on forestry law and policy in that country. The objective of the consultancy was to "determine the status of past and present activities concerned with the review and revision of policy and law related to forestry in Guyana". The consultant was to attain this objective by reviewing existing legislation, multilateral and bilateral treaties and other agreements; and consulting with interested parties.

The specialist, painstakingly and in great detail, reviewed the Forests Act, the Guyana Forestry Commissions Act, the Guyana Timber Export Act, the Timber Marketing Act, the Guyana Natural Resources Agency Order, and the Forest Regulations. In addition, she examined a number of related laws, for example, the Constitution, the Lands Department Act, the State Lands Act, the Amerindian Lands Commission Act and the Mining Act. The consultant also listed and briefly described a number of relevant international obligations which included the United Nations Convention on Biological Diversity (1992), the United Nations Framework Convention on Biological Change (1992), and Agenda 21.

A concise general assessment of the existing forestry legislation was then made. The consultant pointed out that the laws relating to forestry were designed to promote the commercial exploitation of the State Forests of Guyana. She noted that there were patent deficiencies in the laws, including inconsistencies among the principal enactments. Most important, however, was the observation that the existing legislation could not be used as an effective instrument for contemporary forest management, and was not in consonance with the country's international objectives.

The consultant identified a number of problem areas which existed in forestry in Guyana, and which directly arose from the inadequacy of the legislation. These, except for those relating to deficiencies in the provisions for protecting the environment and endangered species, were all basic and operational: institutional arrangements, the control of timber exports, operating and exploratory permits, and the use of chainsaws. Recommendations were then put forward for resolving these problems. These were all considered by the drafters of the recently approved National Forest Policy Statement.

A short section of the consultant's report is devoted to what were described as policy issues: forests on state lands, forests on Amerindian lands, forests in private lands, wetlands and mangrove forests, and national parks, wildlife and nature.

The focus in all these matters was not so much on policy, per se, but on legal inconsistencies, overlapping jurisdictions, and lacunae in the provisions for the management and conservation of the country's forest resources.

The methodology that was followed in this 'policy study' was one of reviewing the literature; discussing the issues with stakeholders; and identifying inconsistencies, gaps and potential and current obstacles in the legislation to forestry development in Guyana. Recommendations were then made for amending and revising the laws; rationalizing institutional arrangements; and improving related aspects of forestry policy.

## National Protected Areas System

In 1996 and 1997 the World Bank mounted missions to Guyana to discuss the establishment, in that country, of a National Protected Areas System (NPAS). Late in 1997, the Government of Guyana and the World Bank agreed on a project which would assist the Government in the establishment of protected areas which would also conserve globally important biological diversity. It is intended that the project would contribute to ecosystem and biodiversity conservation and watershed protection, within Guyana's strategy for sustainable development. One objective of the project is the establishment of the necessary institutional legal and technical foundation to create and manage a comprehensive protected areas system in Guyana.

The project includes components related to the establishment of a national protected areas system design and identification unit; the selection of at least two representative pilot protected areas; the strengthening of institutions and the provision of relevant training; the formulation of a legislation policy and financing framework; and monitoring and evaluation.

The agreed project document was based on a series of discussions and what may be described as "policy studies". The World Bank and the Government of Guyana readily agreed on the broad principle that steps should be taken to establish protected areas in the country. Indeed, the Government had committed itself to this course of action in its approval of Agenda 21.

A number of issues were then identified and discussed: the allocation and management of forestry and mining conservations; the terms and conditions under which concessions are granted; the mandates of responsible government agencies; and the conditions and mechanisms by which previously granted concessions might be amended or revoked in the context of establishing protected areas.

As a result of these discussions, the Government prepared a concise NPAS Outline Strategy in which it defined the process it intended to follow in the establishment of the NPAS. In particular, it sketched the processes to be followed in identifying and establishing protected areas; defined the mechanisms for amending or revoking previously granted concessions; outlined its efforts to resolve Amerindian land claims; and described the mechanisms for the protection of specified areas within already granted forest concessions.

The Government prepared this policy paper after consultation with all the relevant government agencies including, in particular, the Guyana Forestry and Mining Commissions; and after analysing relevant and current legislation and policies. It also held discussions with the main stakeholders, including representatives of various Amerindian communities. The document was approved by the Cabinet.

There is no research in Guyana being undertaken with the specific objective of gaining knowledge of the process of policy formation. No activities are at present being carried out on process study, policy content analysis, metha-analysis and policy evaluation. The 'policy study' descriptions that are presented in here are intended in part to supplement the information provided earlier, and in part to describe some of the methodologies being followed in Guyana in formulating policies for the forestry sector.

# 8. CONCLUSIONS AND RECOMMENDATIONS

Over the last three or four years, the Government of Guyana has made a determined effort to rationalize the policies and laws relating to the conservation of the country's forest resources. It has published a national forest policy statement which was formulated within the context of a newly developed National Development Strategy. It has drafted a new Forest Act to underpin and make effective the forest policy. Moreover, it has restructured the organization of the Guyana Forestry Commission so that it might be better able to implement the provisions of the forest policy.

The Government of Guyana has taken steps to ensure that the measures it has designed to protect the environment are all-embracing and comprehensive. It has, for example, enacted the Environmental Protection Act, and has already established an Environmental Protection Agency.

In addition, it has prepared a strategy for the development of a National Protection Areas System, and has already entered into an agreement with the World Bank to establish a comprehensive and ecologically representative system of protected areas. Indeed, the process of setting up the system has already begun.

The Government of Guyana has also mounted an education and training programme in forestry and related environmental disciplines so that, at least in the medium-term, Guyana would be equipped with a critical mass of qualified personnel to undertake the increasingly complex tasks which foresters are being called upon to perform.

This list of attainments in the areas of forestry policy development is, of course, not exhaustive. It is sufficiently long, however, to indicate how seriously the Government of Guyana has committed itself to the development of the forestry sector.

It is also noteworthy that throughout the process of forestry policy formulation, the approach has been participatory, and that the gamut of stakeholders has been consulted at every stage of the various exercises.

It should nevertheless be recorded, that commendable as these efforts have been, the Government has had to seek the assistance of international and bilateral agencies in identifying issues and problems, in formulating and prioritizing options, and in analysing various courses of action. Indeed, in many instances, the initiatives for the formulation of policies has come from foreign sources as a condition for the provision of external aid.

The sad fact is that in Guyana there is a dearth of policy analysts; and a shortage of personnel in both the government and private sectors with the capability and training rigorously to undertake policy formation in general, and forestry policy formation in particular.

As forestry policy formulation is a process which must continuously take into account changing national objectives, changing technologies, changing methodologies, and new information, it is recommended that Guyana be given international assistance in the methodologies to be followed in forestry policy formulation. Moreover, as this deficiency is probably experienced by many developing countries, it is further recommended that a series of forestry policy training courses be mounted by FAO in order to apprise forestry policy makers in the developing countries of the principles and techniques that are basic to the process.

The process of forestry policy formulation in Guyana also suffers from the unavailability of much information that is basic to the process of analysis. The information either simply does not exist, or if it does exist, is not easy to come by. It is recommended that technical assistance be provided in identifying and classifying the type of information required, the means of obtaining it, and the methods of storing and retrieving it. This is of urgent importance and applies not only to the information which must be obtained within the country itself, but also to relevant data that may be gleamed from external sources.

The consultant wishes to thank all those in Guyana who willingly gave him the information he required or pointed him to other sources. Because of the cooperation of government ministers, public servants, representatives of NGOs and cultural organizations, and members of the staff of the University of Guyana very few constraints, if any, were experienced in the preparation of this study.

# ANNEX - LIST OF PERSONS CONTACTED

| | |
|---|---|
| Mr S. Sawh | Minister for Forestry |
| Mr Vibert DeSouza | Minister of Amerindian Affairs |
| Mr Clayton Hall | Acting Commissioner, Guyana Forestry Commission (GFC) |
| Mr Godfrey Marshall | Acting Deputy Commissioner (GFC) |
| Dr George Walcott | Biodiversity Centre, University of Guyana and Chairman, Policy Strategy Committee |
| Dr Joshua Ramsammy | Member, Policy Strategy Committee and University of Guyana |
| Mr Chris Turnbull | Chief Adviser, Guyana Forestry Commission Support Project, UK Department of International Development |
| Mr Frank Alphonso | Conservation International |
| Ms Joycelyn Dow | Red Thread Women's Development Association |
| Mr David Persaud | Chairman, Forest Products Association |
| Mr John Williams | Forest Products Association |
| Mrs Toni Williams | Forest Products Association |
| Mr Brian Gittens | Forest products Association |
| Ms Norma Bynoe | Executive Secretary, Forest Products Association |
| Mr Ivan Roshevel | Adviser, Mazaralli & Sons Ltd |
| Mr Dharam Sawh | Forest Products Association |
| Mr Warren Phoenix | Forest Products Association |
| Mr George Simon | Member, Policy Strategy Committee and Adviser, Ministry of Amerindian Affairs |
| Mr Kenley Thomas | Assistant Commissioner of Forests and Co-ordinator, Policy Strategy Committee |
| Ms Christine Toppin-Allabar | Consultant, Forest Legislation |

# ETUDE SUR LA DEFORESTATION ET LA DEGRADATION DE L'ENVIRONNEMENT A HAITI

**by Université Catholique de Louvain**

Cette étude a été réalisée avec la contribution financière du budget de l'Union Européenne intitulé "Actions en faveur des Forêts Tropicales dans les Pays en Développement" (B7-6201). Les auteurs sont entièrement responsables pour toute opinion exprimée dans ce document, qui ne reflète pas nécessairement celle de l'Union Européenne.

## 1. CONTEXTE

Dans le cadre de ses actions en faveur des forêts tropicales dans les pays en voie de développement (ligne budgétaire B7-6201), la Communauté Européenne a conclu avec l'Université Catholique de Louvain, en Belgique, un contrat de financement portant la référence B7-6201/96.27/VIII/FOR, ayant pour objet une étude sur la déforestation et la dégradation de l'environnement à Haïti.

Pour permettre la réalisation de cette étude, une convention de coopération a été passée entre l'Université Catholique de Louvain (UCL) et l'Université d'Etat de la République d'Haïti (UEH), les organes responsables étant respectivement, pour l'UCL, l'Unité des Eaux et Forêts, et pour l'UEH, la Faculté d'Agronomie et de Médecine Vétérinaire (FAMV).

L'étude a été réalisée de juin à novembre 1997. En conformité avec les termes de référence, le présent rapport constitue la version finale de l'étude.

## 2. OBJECTIFS DE L'ETUDE

Selon les termes de référence, l'étude devrait procurer aux décideurs du Gouvernement d'Haïti et de la Commission européenne une proposition de stratégie cohérente de Coopération au développement pour le secteur forestier. Elle fournira des éléments d'appréciation (informations et justifications de fond) suffisants pour permettre au gouvernement et à la CE de prendre une décision bien fondée à propos de la future coopération. L'étude devra faciliter la continuité du dialogue politique entre les partenaires et améliorer la participation de toutes les parties prenantes dans le processus. L'étude doit comporter une analyse critique de la politique sectorielle du gouvernement dans le domaine agro-forestier.

En outre, l'étude identifiera un projet pilote (sur l'irrigation et ses corollaires, notamment le reboisement) répondant à la stratégie proposée pour la protection et la restauration du patrimoine forestier d'Haïti.

# 3. EVALUATION DE LA SITUATION ACTUELLE

## 3.1. L'état et la gestion des ressources forestières

### *3.1.1. Le milieu physique*

**Relief**

S'étendant sur 27.770 Km², la République d'Haïti se caractérise par une alternance de chaînes de montagne, de plaines et de plateaux d'altitude variable. Le tableau suivant présente une répartition de l'intensité des pentes en fonction des formes de relief.

| *Topographie* | *Pentes (%)* | *Superficie (carreaux) 1/* | *Pourcentage surface pays (%)* |
|---|---|---|---|
| Plaines et plateaux | 0 à 10 | 625.000 | 29,5 |
| Plateaux et piedmonts | 10 à 20 | 160.000 | 7,5 |
| Piedmonts et mornes | 20 à 30 | 115.000 | 5 |
| Mornes et cols raides | 30 à 40 | 125.000 | 6 |
| Pentes abruptes | > 40% | 1.120.000 | 52 |

1/ 1 carreau = 1,29 hectare
Source: E. Magny, 1990 citant C. Pierre-Louis, 1986.

Il en ressort notamment que:

- 37% seulement du territoire se trouvent sur des terrains plats ou sur des pentes inférieures à 20%, propices à l'agriculture
- plus de la moitié du pays est constitué de pentes supérieures à 40%, considérées comme abruptes.

Selon E. MAGNY, au-delà de 20% de pente, des techniques de conservation des sols sont nécessaires pour bloquer le ruissellement des eaux de pluie ou encore le ravinement dû aux effets mécaniques de l'érosion linéaire. Au-delà de 40%, ces techniques sont obligatoires si le sol est déjà dénudé et alloué à un reboisement prioritaire.

**Climat**

Le climat d'Haïti est défini par le régime intertropical des alizés qui se combine avec le relief tourmenté de l'île pour induire une extrême diversité de situations climatologiques locales. Les saisons se présentent globalement sous la forme d'une alternance de périodes sèches et de périodes pluvieuses avec de faibles variations annuelles de température.

Alors que certaines régions, considérées comme arides, ne reçoivent qu'une quantité de pluie inférieure à 500 mm par an, d'autres reçoivent un total de 2500 mm par an. Par ailleurs, l'intensité des précipitations peut souvent dépasser la capacité d'infiltration des terres. Il en résulte un important ruissellement des eaux de surface dont une part élevée est finalement rejetée dans l'océan sans avoir pu contribuer à la croissance des végétaux mais en ayant souvent provoqué des dégâts (érosion des terres, destruction d'infrastructures, envasement, etc.).

**Géologie, pédologie, érosion**

Le substrat géologique des montagnes haïtiennes est constitué de terrains volcaniques, volcano-sédimentaires ou intrusifs, et de roches sédimentaires. Les roches peuvent être classées comme suit:

- roches ignées acides et roches ignées basiques affleurant inégalement sur l'ensemble du territoire, notamment les andésites et basaltes;
- roches sédimentaires calcaires, notamment les massifs karstiques;
- roches sédimentaires détritiques, colonisées de longue date, l'érosion y étant sensible;
- alluvions et terrasses de plaines;
- calcaires récifaux.

L'érosion est un phénomène majeur dans l'écologie du pays. Due principalement à la pratique de cultures sarclées sur des pentes abruptes, elle est visible dans tous les paysages haïtiens. Des milliers d'hectares de terres de montagnes sont inégalement dégradés, des milliers d'autres présentent des risques considérables.

Les conséquences de l'érosion vont bien au-delà de la diminution des surfaces cultivables en montagne: en effet l'absence de végétation et le décapage des sols entraînent une diminution de la quantité d'eau infiltrée dans le sol et donc, à terme, le tarissement des sources. La recharge des nappes phréatiques est compromise et le ruissellement augmente de même que les risques de crues des rivières transformées en torrents de boue. Ces crues ont lieu au cours des premières semaines de la saison des pluies, alors que les cultures entament leur croissance; les dégâts causés par ces crues sont souvent très graves.

La violence des phénomènes d'érosion sur des terres fragiles et non protégées entraîne l'ablation des matériaux grossiers: l'épandage de ceux-ci sur les terres cultivées en contrebas des zones dégradées provoque la stérilisation des terres les plus fertiles de piedmont ou des berges de rivières. Le colluvionnement et l'alluvionnement ont des conséquences désastreuses sur les systèmes d'irrigation et sur les lacs des barrages dont ils diminuent le volume. Une évaluation du risque d'érosion, effectuée par le BDPA en 1989, donne pour chacun des 30 grands bassins versants du pays une estimation des pourcentage d'érosion totale et du risque d'érosion. En moyenne pour le pays, 5% de la surface totale sont considérés comme totalement érodés et 45% comme à fort risque d'érosion.

E. Magny (1990) classe les facteurs principaux d'érosion des sols comme suit:

- facteurs de type physique: géologie, climat, pente, hydrologie;
- facteurs humains: déboisement, pratique du brûlis, agriculture non-conservationiste.

### *3.1.2. Nature et étendue de la couverture forestière*

Les ressources forestières d'Haïti sont mal connues: la dernière estimation fondée sur une photo-interprétation date de 1978 et était concentrée sur les formations forestières uniquement. Une étude de la Banque Mondiale sur l'environnement, réalisée par le BDPA, a permis en 1989 une évaluation des ressources forestières à partir de la carte d'occupation des sols de 1982, fondée sur des prises de vues aériennes de 1978. Cette carte n'ayant pas été conçue à des fins spécifiquement forestières, les estimations qui en sont tirées sont donc, selon les auteurs mêmes, extrêmement approximatives. Néanmoins, selon le Service Forestier du MARNDR, l'étude du BDPA reste à ce jour la source d'information la plus fiable.

Selon les résultats de cette étude, la répartition des surfaces des différentes formations ligneuses et des volumes de biomasse correspondants s'établissait en 1988 comme suit:

| *Type De Foret* | *Surfaces* | | *Volume Sur Pied* | |
|---|---|---|---|---|
| | *1000 Ha* | *%* | *1.000 M³* | *%* |
| Forêts de feuillus | | | | |
| denses | 14 | 0,5 | 2100 | 5,6 |
| dégradées | 50 | 1,8 | 2500 | 6,7 |
| secondaires | 80 | 2,9 | 3200 | 8,6 |
| Forêts de pins | | | | |
| denses | 8 | 0,3 | 1200 | 3,2 |
| claires | 20 | 0,7 | 600 | 1,6 |
| très claires | 40 | 1,4 | 520 | 1,4 |
| Formations agropastorales | | | | |
| forêts de prosopis | 5 | 0,2 | 250 | 0,7 |
| rack bois (dense) | 100 | 3,6 | 2500 | 6,7 |
| formations buissonnantes (claires) | 185 | 6,7 | 2405 | 6,4 |
| Mangroves | 15 | 0,5 | 525 | 1,4 |
| Cultures arborées denses (vergers, caféières) | 170 | 6,1 | 5100 | 13,6 |
| Cultures arborées et vergers clairs | 400 | 14,4 | 6400 | 17,1 |
| Reste de l'espace (cultures herbacées, jachères courtes, savanes, affleurements, etc) | 1682 | 60,7 | 10095 | 27,0 |
| TOTAL | 2769 | 100,0 | 37395 | 100,0 |

Source: Etude Banque Mondiale (BDPA) - 1989.

On peut en conclure que les forêts denses de feuillus et de pins représentaient en 1988 moins d'un pour cent de la surface totale du pays, cette proportion atteignant 3,8% si l'on considère les forêts denses, dégradées et claires, ainsi que les mangroves.

Il faut également noter l'importance des jachères et des cultures arborées comme stock de biomasse sur pied, représentant probablement la principale source de bois en Haïti.

Une comparaison avec les estimations antérieures fait apparaître une réduction continue de la couverture forestière d'Haïti. Ainsi, les résultats de l'étude du BDPA montrent que, de 1978 à 1988, les réserves ligneuses globales d'Haïti sont passées de 49,5 à 37,4 millions de mètres cubes, soit une diminution de 24%.

La majeure partie des forêts denses restantes en Haïti sont situées à l'intérieur et autour de trois réserves ou parcs nationaux: la Réserve Nationale de la Forêt des Pins, le Parc National Pic Macaya et le Parc National La Visite. Pratiquement ces forêts n'ont fait l'objet d'aucun aménagement jusqu'ici, excepté un bornage et quelques plantations d'enrichissement à la forêt des Pins. Des études assorties de propositions d'aménagement ont cependant été réalisées sur le Parc Pic Macaya. Enfin d'autres formations forestières naturelles menacées mériteraient une protection, telles les mangroves, les forêts claires d'épineux à Prosopis, les maquis épineux à base de cactus et les forêts feuillues.

## *3.1.3. Les causes de la dégradation du couvert forestier*

### 3.1.3.1. Historique de la déforestation en Haïti

Pour bien situer les faits, il convient d'identifier trois phases dans la déforestation en Haïti.

Le déboisement a commencé par l'exploitation massive de bois de teinture (Campêche, etc.), de bois d'œuvre (Acajou, cèdre, chêne, etc.), de bois de charpente (Pin, etc.). Le bois était destiné à l'exportation. Cette phase débuta durant la colonisation et se perpétua jusqu'après les années 1970.

Le besoin en terres cultivables, notamment pour la production de vivres alimentaires, augmentant avec la densité de population, les paysans ont été amenés à coloniser de plus en plus de terres à vocation forestière, puis les plantations caféières et cacaoyères, jusqu'à la disparition presque totale des forêts et des plantations arborées. Cette phase débuta dès la deuxième moitié du XIXème siècle et continue de se développer de nos jours, surtout avec l'urbanisation d'une bonne partie des plaines agricoles.

A partir du milieu du XXème siècle, le besoin en bois énergétique augmentant, la récolte de bois pour le besoin interne a commencé à dépasser la capacité de renouvellement de la couverture arborée du pays. A cela s'ajoute la pression d'une partie de la population sans revenu sur le bois qui lui sert de moyens de subsistance. Cette situation ne cesse d'empirer de jours en jours et la désertification a commencé à s'installer lentement.

### 3.1.3.2. Causes directes

#### 3.1.3.2.1. Le besoin en terres cultivables

Evaluée au début du siècle dernier à environ 500.000 habitants, la population rurale d'Haïti a été multipliée par 10 aujourd'hui. La disponibilité en terres cultivables par habitant rural est, pendant la même période, passée de 2,0 ha à 0,2 ha, la superficie moyenne de l'exploitation familiale passant, elle, de 12 à 1,2 ha. Or, on estime (FIDA) que la superficie minimum permettant la survie d'une exploitation familiale est de l'ordre de 2,5 à 3 ha. Il en résulte une pression constante sur les terres arables disponibles et notamment sur les formations forestières restantes.

Le processus de défrichement de ces terrains boisés comprend trois phases:

- le déboisement proprement dit c'est-à-dire l'abattage des arbres suivi de la récupération et de la commercialisation des produits
- la pratique du brûlis consistant à brûler sur place les résidus végétaux (feuilles et brindilles).
- la mise en culture des terrains déboisés avec des plantes vivrières.

Seules sont conservées des essences fruitières ou des arbres pouvant fournir des produits secondaires.

Il faut toutefois faire remarquer que certaines cultures de rente telles le café et, accessoirement, le cacao, exigent la présence d'un couvert boisé permanent et favoriseraient plutôt la conservation des formations forestières; cependant les exigences écologiques en limitent l'extension aux zones d'altitude supérieure à 600 mètres.

#### 3.1.3.2.2. L'exploitation des forêts à des fins économiques

Les formations forestières sont exploitées d'une part dans le but de libérer de nouveaux espaces pour l'agriculture, d'autre part à des fins de production de bois d'oeuvre, de bois de service et surtout de bois énergie, ce dernier constituant de loin la principale source énergétique du pays. La consommation annuelle de produits ligneux est estimée (FAO, 1995) à 5,4 millions de $m^3$ dont 98,6% satisfont aux besoins énergétiques, le reste de la consommation consistant en bois de service (1%) et bois de sciage (0,4%).

Le volume de bois exploité est près de quatre fois supérieur à la productivité annuelle des formations forestières estimée à 1,6 millions de $m^3$ (FAO, 1995), ce qui traduit la très nette surexploitation des forêts haïtiennes. La FAO estime par ailleurs que les besoins en bois énergie ont encore augmenté depuis 1991, suite à l'embargo.

Les principales essences forestières utilisées sont les suivantes (selon E. Magny, 1990, citant C. Pierre-Louis, 1986):

- **Bois d'ébénisterie fine**: Acajou (*Switenia mahogani*), Cèdre (*Cedrella odorata*), Tavernon (*Lysilloma latisiliqua*);
- **Bois d'ébénisterie courante**: Chêne (*Macrocatalpa longissima*), Frêne (*Simaruba glauca*), Bois blanc (*Simaruba officinalis*), etc;

- **Bois de charpente:** Pin (*Pinus occidentalis*), Bois Ferblanc, bois pelé (*Colubrina ferruginosa*), Bois de Fer (*Colubrina reclinita*), etc;
- **Bois de charronnage:** Bahayonde (*Prosopis juliflora*), Bois jaune (*Chlorophora tinctorial*), Bois d'ébène (*Rochefortia acantephora*);
- **Bois de tour et de sculpture:** Gaiac franc (*Guayacum officinale*), Gaiac bâtard (*Guayacum santum*), etc;
- **Bois de tanin et de matières colorantes:** Campêche (*Haematoxylon campechianum*), Manglier rouge (*Rhizophora mangle*), Manglier blanc (*Lagunculuria racemosa*), etc;
- **Bois de chauffe et à charbon:** Bahayonde (*Prosopis juliflora*), Acacia (*Acacia lutea*), Bahayonde rouge (*Acacia toruosa*), Bois cabrit (*Cassia emarginata*), etc.

Il faut également souligner l'importance de l'utilisation des bois de mangroves (Mangliers, palétuviers) comme bois de service (perches). En ce qui concerne le bois énergie, suite à la raréfaction du bois, on a constaté l'utilisation massive de manguiers et autres fruitiers comme bois de chauffe pour ravitailler le secteur informel.

La nature et la répartition de la consommation de combustibles ligneux en 1990 a été estimée par la Banque Mondiale - ESMAP comme suit (tableau page suivante):

On peut notamment en conclure que:

- 62% des combustibles ligneux sont consommés sous forme de bois de chauffe, 38% étant transformés en charbon de bois;
- le charbon de bois est principalement utilisé pour satisfaire les besoins domestiques des principales villes du pays; les ménages en consomment 80% et le secteur non domestique 20%;
- avec 0,2 million de tonnes, Port-au-Prince représente plus des deux tiers de la consommation nationale de charbon de bois;
- les boulangeries, dry cleaning (nettoyage à sec), guildives et huileries utilisent environ 9% (soit 200.000 tonnes) de la totalité du bois de feu consommé;
- la consommation de Port-au-Prince représente à elle seule 27% de la consommation totale de produits ligneux.

| | *Charbon de bois* | *Bois de Feu* | *Equivalent Bois* | | |
|---|---|---|---|---|---|
| | *(1.000 t)* | *(1.000 t)* | *(1.000 t)(a)* | *(1.000 m³)(b)* | *%* |
| *Port-au-Prince* | | | | | |
| Ménages (c) | 160 | | 800 | 1143 | 21 |
| Secteur informel, autre | 40 | | 200 | 286 | 5 |
| Boulangeries, dry cleaning | | 20 | 20 | 29 | 1 |
| Sous-total | 200 | 20 | 1020 | 1458 | 27 |
| | | | | | |
| *Autre urbain* | | | | | |
| Ménages | 65 | 30 | 355 | 507 | 9 |
| Secteur informel, autre | 15 | | 75 | 107 | 2 |
| Boulangeries, dry cleaning | | 20 | 20 | 29 | 1 |
| Sous-total | 80 | 50 | 450 | 643 | 12 |
| | | | | | |
| *Rural* | | | | | |
| Ménages | | 2100 | 2100 | 3000 | 56 |
| Guildives | | 130 | 130 | 186 | 4 |
| Huileries | | 30 | 30 | 43 | 1 |
| Sous-total | | 2260 | 2260 | 3229 | 61 |
| | | | | | |
| *Total Haïti* | | | | | |
| Ménages | 225 | 2130 | 3255 | 4650 | 87 |
| Autres | 55 | 200 | 475 | 680 | 13 |
| Total | 280 | 2330 | 3730 | 5330 | 100 |

Notes: (a) Rendement pondéral de carbonisation estimé à 20%; (b) Densité du bois estimée à 0,7 tonnes/m³; (c) 90% des ménages utilisent le charbon de bois
Source: BM-ESMAP 1991.

Les principales zones d'approvisionnement de Port-au-Prince sont (FAO - 1995):

- - pour le bois de feu destiné principalement aux boulangeries, guildives et huileries essentielles: les montagnes avoisinantes et les zones proches du plateau central;
- pour le charbon de bois: 70% provient du Nord, du Nord-Ouest, de l'Artibonite, de l'Ouest et de l'Ile de la Gonave;
- pour le bois de service: les mangroves du Golfe de la Gonave
- pour les planches: la Forêt des Pins
- on constate actuellement une extension des zones de bois énergie vers le Plateau Central et le Sud du Pays; dans les anciennes zones d'exploitation principalement localisées dans les zones arides à potentiel agricole faible et très irrégulier, on assiste à une véritable professionnalisation de l'exploitation charbonnière avec des rendements exploitables moyens de 20% en carbonisation, alors que dans les nouvelles zones, les charbonniers sont des petits paysans pratiquant ce métier occasionnellement avec des rendements pondéraux nettement inférieurs.

### 3.1.3.3. Causes indirectes

#### 3.1.3.3.1. La demande énergétique nationale

**Bilan énergétique**

Dans le domaine des énergies, le Programme conjoint Banque Mondiale/PNUD d'assistance à la gestion du secteur de l'énergie (ESMAP) a réalisé en 1990/1991 une étude détaillée du secteur. Selon cette étude, la consommation d'énergie moderne per capita d'Haïti est de l'ordre de 1,8 baril d'équivalent pétrole par habitant et par an, soit une des plus faible du monde et la plus faible du continent latino-américain. L'accès des populations haïtiennes à l'énergie moderne est réservé à une minorité: seul le kérosène, utilisé pour l'éclairage, connaît une large diffusion. Le gaz et l'électricité sont utilisés par une partie très limitée de la population, essentiellement en milieu urbain.

Le bilan énergétique national de 1985 est résumé dans le tableau suivant

| *(1000 TEP)1/* | *Résidentiel* | *Industrie* | *Transport* | *Commerce* | *Gouvernement* | *Total* |
|---|---|---|---|---|---|---|
| Charbon minéral | | 36,5 | | | | 36,5 |
| Carburants pétroliers | 17,4 | 49,0 | 121,5 | | | 187,9 |
| G.P.L. | 2,7 | | | | 1,2 | 3,9 |
| Electricité | 10,1 | 11,1 | | 1,2 | 3,1 | 25,5 |
| Charbon de bois | 88,9 | 1,5 | | | | 90,4 |
| Bois de Feu | 635,1 | 49,8 | | 286,5 | | 971,4 |
| Bagasse | | 86,0 | | | | 86,0 |
| TOTAL | 754,2 | 233,9 | 121,5 | 287,7 | 4,3 | 1401,6 |

1/ Tonne équivalent pétrole
Source: ESMAP,1991 citant Kooi, 1986

Ce bilan met en évidence l'importance de la consommation domestique (résidentiel) qui représente à elle seule plus de la moitié de la demande énergétique totale. Viennent ensuite par ordre d'importance le secteur commercial, l'industrie et les transports. Le tableau souligne aussi l'importance du secteur des combustibles ligneux dans l'offre énergétique nationale: le bois de feu, qui représente à lui seul 70% de l'approvisionnement national, le charbon de bois et la bagasse (résidu de la transformation de la canne à sucre). Haïti est ainsi actuellement (1985) à plus de 80% autosuffisant en énergie. Ceci est dû en premier lieu à l'utilisation domestique de bois en milieu rural et de charbon de bois en milieu urbain. Mais on notera également que le bois de feu, la bagasse et, dans une moindre mesure le charbon de bois, sont utilisés largement par le secteur industriel: ils représentent ainsi en cumulé 63% de la consommation industrielle d'énergie.

Une analyse de la ventilation de la consommation de charbon de bois et de bois de feu, par catégorie de consommateurs, a été effectuée à la section précédente.

**Dégradation de l'environnement**

Haïti est confronté à un processus de grave dégradation progressive de son environnement, dont les effets sont immédiatement perceptibles et parfois irréversibles, en particulier concernant la perte des sols et la diminution de la productivité agricole. La consommation de combustibles ligneux, et notamment la consommation urbaine de charbon de bois constitue un des principaux facteurs de la déforestation.

Bien que beaucoup d'incertitudes subsistent sur l'offre de bois énergie, la déforestation en Haïti est une réalité incontestée et il importe de réduire la pression que fait subir à la ressource la consommation de combustibles ligneux, en particulier la consommation de charbon de bois de Port-au-Prince.

**Reboisement et gestion des ressources forestières**

Selon l'étude ESMAP, les actions de reboisement réalisées jusqu'ici, essentiellement basées sur l'agroforesterie, ne représentent qu'une solution partielle au problème de la déforestation: sur la base des dernières analyses, il faudrait planter chaque année au moins 23 millions d'arbres, soit dix fois plus qu'actuellement (1990) pour renverser le processus de dégradation.

La gestion publique des ressources forestières s'est avérée inefficace et l'exploitation charbonnière s'est généralisée sur l'ensemble du territoire. Le Service Forestier, renforcé dans le cadre du Projet Forestier National, ne contrôle cependant guère plus de 10% du commerce du charbon de bois.

**Gestion de la demande d'énergie domestique**

Quelques actions ont été accomplies en matière d'économie de charbon de bois, notamment par le BME (Bureau des Mines et de l'Energie) et par des ONG. Actuellement (1997) se réalise au BME un projet de mise au point de foyers améliorés à charbon de bois, sur financement de la Banque Mondiale, avec l'assistance technique de l'ONG CARE HAITI. En matière de substitution, des essais sont également effectués sur des réchauds à kérosène dans le cadre du même projet. A la fin des années 80, une initiative du secteur privé, appuyée par le gouvernement, avait pour but d'introduire des réchauds à gaz butane; cependant, suite à l'embargo, ce projet fut abandonné.

**Coûts des combustibles domestiques**

Selon l'étude ESMAP (1991), le gaz est l'option la plus intéressante financièrement pour le consommateur, et la plus économique pour le pays. Les études de marché montrent que c'est le combustible qui a le plus de chance de pénétrer dans les ménages urbains haïtiens: on estime son marché potentiel à 25 à 50% des ménages de la capitale selon les hypothèses de prix, contre moins de 10% pour ses concurrents directs, le kérosène et l'électricité.

Le secteur énergie domestique est en total déséquilibre économique et nécessite une intervention rapide. Le paysan subventionne le consommateur urbain, lui cédant son bois à un prix nettement inférieur au coût de sa reconstitution, en ayant recours à l'exploitation minière des ressources forestières, qui entraîne la dégradation de l'environnement et de l'économie agricole.

**Stratégie d'intervention**

L'étude de l'ESMAP débouche sur une stratégie d'intervention à court terme pour redresser la situation du secteur. En ce qui concerne l'énergie domestique, la stratégie proposée se base sur deux axes principaux:

- l'amélioration des conditions de production et de commercialisation de bois énergie;
- la substitution et l'amélioration des conditions d'utilisation.

Les propositions de mise en oeuvre de cette stratégie nécessitent toutefois d'être actualisées en tenant compte notamment des changements de politique (décentralisation), des modifications des conditions économiques (dévaluation de la gourde, libéralisation des importations) et de la compétitivité des produits de substitution (briquettes de charbon ou de déchets de bois, bagasse et

autres déchets agricoles, foyers améliorés à gaz butane et à kérosène). Une étude comparative des différents produits proposés tenant compte à la fois de l'intérêt des producteurs et des consommateurs est indispensable afin de pouvoir redéfinir une stratégie énergétique nationale favorisant l'un ou l'autre produit de substitution au bois énergie.

**Concernant la filière bois énergie, il s'agirait:**

- d'évaluer les potentialités du pays afin d'identifier les zones prioritaires de production pour Port-au-Prince et les autres villes (forêts et agro-foresterie);
- de créer des groupements de charbonniers et d'exploitants dans ces zones (formation, équipement);
- de favoriser les programmes agro-forestiers en vue de contribuer à la satisfaction des besoins énergétiques;
- de créer des marchés ruraux de bois de feu et de charbon de bois au niveau communal, gérés par des associations;
- de mettre sur pied une taxation différentielle collectée au niveau des communes en faveur des zones contrôlées.

### 3.1.3.3.2. Les conditions de l'exploitation agricole

**Systèmes de production agricole**

Les stratégies paysannes prennent en compte un grand nombre de facteurs qui, dans un pays aussi diversifié qu'Haïti aboutissent à une multitude de systèmes de production plus ou moins différenciés entre eux. Le milieu naturel, caractérisé par son potentiel de production, la plus ou moins grande facilité de la mise en valeur, la régularité des résultats qu'on peut en escompter, constitue un facteur décisif des stratégies paysannes. Malgré la dégradation de l'environnement, les exploitants réalisent une valorisation des ressources par l'association de la culture, de l'élevage et de l'arbre. Enfin, l'accès au foncier et le mode de faire-valoir influent sur le choix des spéculations (cultures à cycle court accompagnant les tenures incertaines) et sur la conduite des cultures (fertilisation minérale et restitutions organiques sont réservées en priorité aux parcelles à tenure stable).

Suivant une classification souvent retenue, on peut distinguer cinq grands systèmes de production, caractérisés comme suit:

1) le système des **quatre grandes plaines** au passé sucrier (Cul-de-Sac, plaine du Nord, plaine des Cayes, plaine de Léogane):

- à proximité des usines où de grands propriétaires absentéistes pratiquent la monoculture de la canne en employant la main d'oeuvre salariée pour la coupe.; la fermeture récente des usines sucrières remet en cause ce système qui connaît déjà une reconversion dans les zones les plus éloignées des usines où les petits exploitants pratiquent des cultures vivrières et de canne à sucre destinées aux unités artisanales (guildives);
- à base de manioc en association avec d'autres cultures dans le nord du pays;
- culture de banane sur les sols profonds et bien drainés;
- culture irriguée de tabac dans certaines plaines;
- élevage bovin développé pour la viande et le lait;

2) les **plaines humides** dépourvues d'unités de traitement de la canne:

- mêmes associations vivrières conduites par des petits propriétaires ou des paysans moyens;
- dans les zones moins bien drainées et/ou irriguées, culture du riz souvent associée aux autres cultures vivrières et parfois de légumes (Exemple: plaine de l'Artibonite);

3) les **mornes et plateaux humides:**

- cultures vivrières (maïs, haricot, igname) associées aux cultures arbustives (café);

- depuis plusieurs années, le haricot remplace de plus en plus le café, d'où un risque grave de dégradation des sols et de destruction du potentiel de production;
- élevage porcin et bovin " au piquet " fortement intégré à l'agriculture;

4) les **plaines et basses collines sèches:**

- systèmes de production, adaptés au milieu, orientés vers le manioc, le sorgho, le mil, le maïs;
- charbon de bois et élevage caprin extensif complètent les revenus de l'exploitation;
- quelques petits périmètres irrigués orientés vers la banane plantain, le haricot ou le maraîchage;

5) la **zone du Plateau Central,** moins peuplée:

- élevage en semi-liberté;
- production à dominante vivrière (manioc, maïs) associée à la canne à sucre (guildive et rapadou);
- bordures Nord et Sud du Plateau Central possèdent des cultures proches de celles des mornes et plateaux humides avec la présence de café/cacao ainsi que du riz pluvial au Nord;
- plusieurs petites vallées alluviales sont partiellement irriguées.

L'**élevage** présente les caractéristiques suivantes:

- il n'existe pratiquement pas de troupeaux en milieu rural, les animaux étants dispersés dans les exploitations;
- les animaux qui appartiennent à des urbains sont souvent placés en gardiennage auprès des petits exploitants;
- la conduite des animaux répond plus à des stratégies de thésaurisation, parfois de spéculation par les propriétaires urbains, qu'à des objectifs de production;
- la culture fourragère est rare, les animaux trouvant leur alimentation soit dans les zones de pâturage (Plateau Central, Plaine du Nord), soit dans les résidus agricoles;
- la réduction des pâturages et la diminution des sous-produits disponibles rendent de plus en plus problématique l'alimentation du bétail;
- le troupeau porcin est loin d'être reconstitué suite à l'abattage systématique entrepris au début des années 80.

La production des principales cultures en 1994 est présentée dans le tableau suivant:

| *Culture* | *Surface 1/ (1.000 ha)* | *Production (1.000 t)* | *Rendement (t/ha)* |
|---|---|---|---|
| Maïs | 448 | 370 | 0,82 |
| Sorgho | 250 | 170 | 0,70 |
| Riz | 86 | 130 | 1,50 |
| Haricot | 60 | 45 | 0,75 |
| Manioc | 28 | 112 | 4,00 |
| Igname / Patate douce | 84 | 370 | 4,40 |
| Taro | 18 | 38 | 2,10 |
| Banane | 80 | 320 | 4,00 |
| Café | 135 | 35 | 0,26 |
| Canne à sucre | 120 | 4200 | 35,00 |
| Arbres fruitiers | - | 150 | - |

1/ Il s'agit principalement de cultures pluviales puisque 60.000 ha reçoivent une forme incomplète d'irrigation et seuls 5.000 ha sont correctement irrigués.
Source : FAO - 1995 sur base des travaux de l'ANDAH et de l'USAID

**Hydraulique agricole**

Selon les régions éco-climatiques, les aménagements hydro-agricoles permettent une irrigation d'appoint pour sécuriser un ou plusieurs cycles de culture ou une irrigation destinée à assurer une simple production vivrière.

Le tableau suivant présente les caractéristiques générales des périmètres irriguées.

| | *Grand périmètre (Artibonite)* | *Moyens périmètres (500 à 2.000 ha)* | *Petits périmètres (< 500 ha)* | *Total* |
|---|---|---|---|---|
| 1. Nombre | 1 | 38 | 128 | 167 |
| 2. Surface aménagée (ha) | 35411 | 39237 | 16854 | 91502 |
| 3. Surface irriguée (ha) | 27507 | 25978 | 11984 | 65469 |
| 4. Surface à réhabiliter (ha) | 25625 | 22655 | 12463 | 60473 |
| 5. Extensions possibles (ha) | 9196 | 33250 | 8968 | 51414 |

Source: FAO, 1995 citant la Politique Nationale d'Irrigation:ses objectifs et implications - MARNDR - Service de l'Irrigation, Mars 1991.

Sur les 65.000 ha qui peuvent recevoir une forme incomplète d'irrigation (souvent par manque d'aménagement parcellaire), seuls 5.000 ha peuvent être considérés comme fonctionnels puisque 60.000 ha doivent être réhabilités. Cependant d'autres sources estiment que les superficies opérationnelles pourraient atteindre 10.000 ha.

Bien que plus limités en superficie totale, les petits périmètres s'adaptent bien aux sites situés dans les vallées étroites ou des zones où les ressources en eau ne permettent pas d'envisager des périmètres plus importants. Cependant, bien que leur appropriation par les bénéficiaires soit plus facile, ils ont connu les mêmes difficultés (manque d'entretien, redevances trop faibles, faible intensification agricole) que les périmètres plus importants.

Concernant les 38 périmètres moyens, il n'y a actuellement que 5 sites plus ou moins fonctionnels dont certains nécessitent des travaux d'aménagement pour sécuriser l'approvisionnement en eau. Concernant le périmètre de l'Artibonite, la presque totalité a besoin d'une réhabilitation en profondeur. Les problèmes rencontrés dans ce dernier périmètre sont nombreux: approvisionnement en eau insuffisant par le barrage de Péligré étant donné la priorité accordée à la production d'électricité, détérioration des canaux, problème de drainage, faible taux de recouvrement de la redevance (20%) par l'ODVA, et niveau insuffisant de cette redevance. En fait, bien que plusieurs études d'aménagement aient été réalisées dans l'Artibonite, il manque un plan global de relance et d'organisation du périmètre.

**Taille des exploitations**

Il existe peu de données fiables sur la taille des exploitations agricoles.

Selon la FAO, la superficie moyenne de l'exploitation familiale serait actuellement de 1,2 ha, soit dix fois moins qu'au début du siècle.

Par ailleurs, le recensement agricole de 1982 fournit la répartition suivante:

| *Taille (Carreau)* | *Taille (Ha)* | *% des exploitations* | *% des terres cultivées* |
|---|---|---|---|
| < 1 | < 1,28 | 70 | 32 |
| 1 à 3 | 1,28 à 3,84 | 24 | 40 |
| 3 à 10 | 3,34 à 12,80 | 4 | 19 |
| > 10 | > 12,80 | 2 | 9 |
| **Total** | | 100 | 100 |

Source: FAO - Etude sectorielle, 1995.

Ce tableau fait apparaître d'une part le morcellement élevé des exploitations agricoles, d'autre part la faible proportion des grandes exploitations..

Si l'on estime qu'un minimum de 2,5 à 3 ha (non irrigués) est actuellement nécessaire à un exploitant pour survivre, plus de 80% des exploitations seraient donc contraintes de rechercher une source additionnelle de revenu (telle la production et la vente de charbon de bois).

La situation se complique encore du fait de la multiplication des parcelles (4 à 5 unités en moyenne), localisées dans des écosystèmes différents à l'intérieur de l'exploitation et dont le statut foncier peut varier.

Tenure foncière

Il est généralement reconnu que la structure foncière exerce un impact direct sur l'environnement et constitue un facteur essentiel, de nature à contrecarrer toute action de développement rural.

En Haïti, le statut légal prédominant des terres est l'indivision familiale, le mode de succession légal étant le partage égalitaire. Cette situation a entraîné un émiettement des exploitations agricoles. L'indivision est gérée par le biais d'une dissociation des droits sur la terre (droit de culture, de cueillette, d'abattage des arbres, de vaine-pâture, de résidence, de sépulture) attribués à des individus ou des groupes d'individus spécifiques.

Le partage égalitaire se traduit le plus souvent par un partage informel et une connaissance coutumière des droits de chaque héritier. Cette structure foncière est fragile, du fait du manque d'information des héritiers sur leur véritable statut (accès au titre de propriété et tradition orale), du fait de l'ancienneté des titres, de l'absence de cadastre et du nombre potentiel d'ayants droit pouvant réclamer le bien.

L'insécurité foncière qui en résulte, encore renforcée par l'existence d'un grand nombre de propriétaires absentéistes qui louent leurs terres aux paysans, freine tout investissement à long terme sur ces terres (dont les aménagements de conservation de sol) par manque d'intérêt des exploitants.Pour les mornes, la tenure foncière est déterminante sous un triple aspect:

- la gestion de la fertilité des sols est caractérisée par le transfert de la fertilité des parcelles les plus éloignées (dont la sécurité foncière est faible) vers les parcelles peu éloignées de la maison ou directement autour;
- le droit de vaine-pâture, généré par la gestion de l'indivision, empêche la mise en culture des jachères et implique un mode extensif de gestion du troupeau et donc une mauvaise intégration agriculture/élevage (ainsi que des difficultés d'établissement d'éventuels boisements);
- ce sont donc les aires de résidence qui, avec les fonds de ravine, restent les seules aires boisées repérables dans le paysage.

En ce qui concerne le statut des exploitations, il faut remarquer que l'exploitation regroupe le plus souvent des parcelles exploitées sous des statuts divers: propriétaire, métayer ou fermier. Ceci vient de la volonté de l'exploitant de répartir les risques en travaillant dans des écosystèmes différents mais ceci correspond également à la stratégie que l'exploitant met en oeuvre aux différentes étapes de sa vie en fonction de ses moyens (héritage, location, achat de parcelle). Cependant on estime que le faire-valoir direct est dominant dans les mornes (80 à 90% des cas).

**Equipements et intrants - décapitalisation de l'exploitation**

En général, l'exploitant dispose de peu d'outillage agricole dont la valeur ne doit pas dépasser 20 USD. Ce faible équipement ne lui permet pas de transformer et de maîtriser le milieu; il y a peu de préparation du sol avec la traction animale, peu de transformation des produits agricoles et de grandes difficultés pour les travaux de conservation des sols et d'entretien des réseaux d'irrigation. Les intrants chimiques sont peu employés. La situation est telle dans certaines régions que des projets ont eu recours à des banques d'outils qui pratiquaient le prêt des équipements.

Cette faiblesse de l'équipement s'explique par la taille limitée de l'exploitation, mais également par les dépenses exceptionnelles auxquelles l'exploitant doit faire face: frais de succession au moment de l'héritage, frais d'enterrement et divers prélèvements plus ou moins licites. Si on ajoute que l'aide de l'Etat au niveau de l'exploitation a été extrêmement réduite, que les projets financés par l'aide extérieure ont souvent été concentrés sur l'infrastructure collective et que le système de crédit a concerné un petit nombre d'exploitants, on comprend que l'exploitation agricole se soit progressivement décapitalisée. Ceci concerne l'outillage mais également le patrimoine de l'exploitant: porcins, arbres fruitiers et parfois une parcelle de l'exploitation.

Dans ce cadre, la productivité de l'exploitation reste faible; le seul facteur dont dispose l'exploitant réside dans sa force de travail. Il n'est souvent pas en mesure de répondre à la demande de produits vivriers ou de produits d'exportation. Il ne peut pas profiter des possibilités techniques ou entretenir des infrastructures qui lui sont proposées par les projets. C'est vraisemblablement cette situation qui explique en grande partie l'échec de nombreux programmes de développement.

Cette décapitalisation au niveau de l'exploitation est à l'origine de la dégradation des ressources naturelles tant sur l'exploitation elle-même (absence de reconstitution de la fertilité) que sur les zones non encore cultivées: déforestation des zones non cultivables, collecte de bois, fabrication de charbon de bois.

## *3.1.4. La gestion des forêts et des bassins versants*

### 3.1.4.1. Les institutions gouvernementales et non gouvernementales

**Institutions nationales**

Du point de vue institutionnel, plusieurs organes ministériels interviennent directement ou indirectement dans la gestion des forêts et des bassins versants. Les détails sont donnés à l'annexe 1. Les deux ministères principalement concernés par le secteur forestier sont le Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural (MARNDR) et le Ministère de l'Environnement (MDE). Un troisième ministère, celui de la Planification et de la Coopération Externe intervient au niveau de l'organisation et de la coordination de l'aide extérieure publique (organismes internationaux et aide bilatérale).

Enfin, le Ministère de l'Intérieur gère également un Projet de Protection du Morne l'Hôpital à Port-au-Prince.

Une restructuration du MARNDR et des institutions annexes de développement agricole est actuellement en cours, visant notamment, dans le cadre de la décentralisation, à renforcer les attributions des Directions Départementales de l'Agriculture (DDA) et des Bureaux Agricoles Communaux (BAC).

**Institutions territoriales**

Suivant la constitution de 1987, il existe trois niveaux de collectivités territoriales en Haïti, chacune gérée par une assemblée et un conseil: le département, la commune et la section communale. Les compétences et attributions des différents niveaux n'étant pas définis, en pratique les CASEC (Conseil d'Administration des Sections Communales) sont subordonnés aux conseils communaux, la Commune constituant alors le principal centre de décision.

Dans le cadre de la décentralisation, une législation accordant plus d'autonomie aux collectivités territoriales a été récemment adoptée, mais les moyens nécessaires n'ont pas encore été fournis à ces institutions.

**ONG, groupements et associations paysannes, coopératives**

C'est à partir des années 70 que se sont développées les ONG (Organisations Non Gouvernementales) en milieu rural, souvent en tant qu'émanations de mouvements religieux (Eglises catholique et protestante). L'importance des ONG s'est accrue progressivement du fait de l'attribution préférentielle des fonds de l'aide internationale aux ONG au détriment de l'Etat, de plus en plus contesté et manquant de ressources. Avant 1986, les Conseils d'Action Communautaires (CAC), précurseurs des actuels CASEC, étaient les relais naturels d'intervention de l'Etat. Les ONG ont, de leur côté mis en place une stratégie de pénétration du milieu par les groupements.

Les groupements et associations de paysans sont nés en partie de la volonté des ONG de créer des structures locales parallèles mieux adaptées au développement rural. Le développement des groupements constitue un phénomène national avec une intensité plus forte sur le Plateau Central et la Plaine du Nord. L'approche par groupements semble s'être généralisée pour différentes raisons:

- compensation de l'absence d'institutions dans le monde rural, facilité des contacts dans un pays d'habitat dispersé et réponse au problème de l'atomisation de la production dans les micro-exploitations agricoles dans le cadre de rapports économiques structurés avec des firmes ou des institutions;
- renforcement de l'encadrement technique des agriculteurs, dans le cas du groupement polyvalent à buts multiples.

Comme les groupements, les coopératives de service sont souvent nées à l'initiative de mouvements religieux. Il en existerait 200 à 300 dans le pays, représentant entre 20.000 et 30.000 exploitants. Une grande part de la réussite des coopératives vient du fait qu'elles ont eu pour objectif la mise en commun d'activités que les paysans avaient déjà l'habitude de gérer collectivement: pâturages, stockage de grains, commercialisation du café.

Dans le cadre d'une intégration des activités d'aménagement de bassins versant, il faut encore mentionner l'existence des Comités d'Usagers des systèmes d'irrigation, intervenant dans la gestion des périmètres, leur entretien et la collecte des taxes d'irrigation, ainsi que les syndicats de producteurs qui sont des associations plus larges que les groupements et qui peuvent contribuer à la structuration du monde rural.

#### 3.1.4.2. La législation forestière

Elle consiste en une compilation de lois successives depuis l'indépendance, généralement inappliquées:

- le Code rural François Duvalier interdit la coupe de bois sans autorisation, recommande de planter des arbres sur les terres débroussaillées, interdit l'usage des fruitiers comme bois de feu et protège les forêts des bassins versants;
- d'autres lois et décrets concernent la création de parcs nationaux, la réduction de la taxe d'importation du kérosène et l'obligation du propriétaire de mettre sa terre en valeur selon sa vocation et selon le mode d'exploitation le plus approprié à la conservation et à la productivité du sol.

Par manque de volonté politique et de structure adéquate, aucune disposition réelle n'est prise pour faire appliquer ou faire respecter cette législation. Il en résulte notamment une exploitation forestière anarchique et non durable.

## 3.2. Les conséquences de la dégradation

La raréfaction des ressources forestières a pour conséquence une diminution de la disponibilité de produits forestiers, une réduction des ressources en eau, une menace importante pour la biodiversité, et surtout, du fait du relief particulier d'Haïti, une sédimentation des plaines causée par l'érosion des montagnes du fait de la disparition de leur couvert forestier protecteur. Sur les 30 grands bassins versants que compte le pays, 25 manquent d'une couverture forestière significative et 12 sont totalement dégradés.

Selon la FAO - 1995 et le BDPA -1990, les principales conséquences directes de la mise en valeur anarchique et de la surexploitation des bassins versants sont la disparition du couvert boisé, la perte de fertilité des sols et l'érosion accélérée (10 à 500 t/ha/an) ou catastrophique (plus de 500 t/ha/an). La perte annuelle totale en terre pour Haïti est estimée à 36,6 millions de tonnes équivalent à 12.000 ha de terres érodées sur 20 cm/an. Les pertes annuelles de productivité agricole attribuées à l'érosion ont été évaluées à 2,3 millions US$.

La diminution des rendements agricoles du fait de la disparition de la couverture forestière, de l'érosion, de la perte de fertilité des sols, de l'inefficacité des réseaux d'irrigation, mais aussi de la décapitalisation des exploitations due à l'insécurité foncière, entraînent l'exode rural ainsi qu'un

accroissement de la production de charbon de bois, la vente de ce dernier procurant alors au paysan un indispensable revenu de remplacement.

## 3.3. Contraintes et opportunités du secteur agro-forestier

a) Les principales contraintes du secteur résident dans:

- l'éclatement de la cohésion sociale et la prédominance de l'économie de subsistance dans les échanges économiques;
- la faiblesse institutionnelle, due notamment à l'instabilité politique du pays, qui ne permet pas de réaliser un aménagement durable des ressources forestières;
- la pauvreté du paysan contraint de se procurer un revenu de remplacement par la surexploitation des ressources forestières;
- la pression démographique et le besoin en terres cultivables qui entraînent la mise en culture de sols inaptes à l'agriculture;
- l'insécurité foncière, qui ne favorise pas les investissements à long terme;
- la décapitalisation des exploitations agricoles;
- les prix relatifs peu stimulants des produits agricoles;
- le non respect de la législation relative à la protection de l'environnement;
- le manque de capacité des organisations locales pour représenter leur communauté et défendre ses intérêts.

b) Les principales opportunités du secteur comprennent:

- les potentialités naturelles favorables de production agricole et forestière du pays;
- la décision politique de décentralisation et de désengagement de l'administration au profit des collectivités, des ONG et des privés afin de pouvoir se consacrer plus efficacement à la coordination et au suivi-évaluation des activités;
- la volonté politique de protéger l'environnement;
- la capacité d'adaptation des petits exploitants aux modifications du milieu;
- l'émergence de groupements divers susceptibles d'aider au développement;
- l'existence de technologies générées par les projets de développement et la recherche.

## 3.4. Les différents intervenants et les actions entreprises

### *3.4.1. Les orientations gouvernementales et les institutions nationales*

En 1996, la politique de développement économique du gouvernement a été redéfinie selon deux axes stratégiques: augmentation de la production et augmentation des ressources en devises.

Dans le secteur agricole, l'objectif est d'atteindre la sécurité alimentaire et de dynamiser les exportations. Plus spécifiquement sont visées la maîtrise de l'eau et l'amélioration des conditions de la production agricole.

En matière de protection de l'environnement, le gouvernement considère la préservation des écosystèmes reliques à Haïti et la réhabilitation de ses ressources naturelles comme prioritaires.

Les détails de ces orientations gouvernementales sont présentés à l'annexe 2.

## *3.4.2. L'aide internationale*

C'est essentiellement depuis les années 70 qu'Haïti bénéficie d'une aide extérieure importante au niveau multilatéral, bilatéral et privé.

### 3.4.2.1. La coopération entre la République d'Haïti et l'Union Européenne

a) Stratégie de la coopération communautaire

Dans le cadre de la Quatrième Convention de Lomé, le Programme Indicatif National (PIN) signé en avril 1997, fonde la coopération sur les priorités suivantes:

- le développement et la considération de la démocratie et de l'état de droit ainsi que le respect des droits de l'homme et des libertés fondamentales;
- la lutte contre la pauvreté;
- le développement économique et social durable, avec un accent particulier sur la valorisation des ressources humaines, notamment les questions de genre, et sur la protection de l'environnement;
- l'insertion dans l'économie mondiale, en particulier à travers la relance du secteur privé et le développement du commerce;
- l'approche participative qui implique les populations bénéficiaires tant en ce qui concerne l'identification des actions que leur mise en oeuvre et leur gestion en vue de leur pérennisation.

La coopération communautaire sera concentrée dans les secteurs suivants: l'agriculture/ développement rural (26% du montant du PIN), les infrastructures (32%), la gouvernance (12%), des actions (tel l'ajustement structurel) en dehors des trois domaines de concentration précités, la réhabilitation, les autres instruments de coopération (tel le Stabex) et la coopération régionale.

Dans le secteur agricole/développement rural, l'objectif spécifique de l'intervention européenne est l'amélioration de la rémunération du travail de la grande majorité des paysans à travers l'augmentation de la production agricole.

L'appui financier de la commission européenne soutiendra la politique sectorielle du gouvernement telle qu'exposée ci-dessus. Il sera orienté en priorité dans deux régions: le Plateau Central et la partie Ouest de la Péninsule du Sud. La recherche de synergie avec d'autres interventions communautaires dans le souci de maximiser l'impact de cette coopération renforcera cette option.

Les actions projetées à entreprendre dans un contexte de protection de l'environnement et dans un souci de sécurisation foncière dans le cadre du processus de réforme agraire menée par l'INARA concerneront:

- l'irrigation avec ses corollaires, à savoir: la protection des bassins versants dominants, l'appui à l'investissement paysan notamment l'accès au crédit et aux intrants, l'organisation et la gestion des périmètres réhabilités ou aménagés par les bénéficiaires ainsi que la formation des usagers;
- l'amélioration des voies de desserte rurales, dans le souci de désenclavement des zones d'intervention communautaire;
- la contribution à l'amélioration de la transformation et de la commercialisation des produits agricoles;
- le développement de la recherche et de la formation professionnelle des paysans ainsi que celle des techniciens et des cadres du secteur;
- l'appui au développement local et à la réhabilitation rurale;
- l'assistance technique nécessaire au bon déroulement de l'appui communautaire.

La protection de l'environnement a également fait l'objet d'une attention de la coopération communautaire, soit par l'intégration du domaine de l'environnement dans les différentes actions financées par la Commission, notamment dans le secteur agricole, soit par des appuis spécifiques

des lignes budgétaires liées directement à l'environnement. Dans ce même ordre d'idées devront s'encadrer les appuis à la protection de l'environnement, et notamment la prise en compte de la problématique énergétique pour les prochaines années, tout en optimisant l'accès aux lignes budgétaires environnement et forêts tropicales.

b) Les principales actions en cours dans le secteur agriculture-forêt-environnement

- Le programme Réhabilitation

Financé sur la ligne budgétaire Réhabilitation à la suite du programme ECHO, ce programme finance des ONG qui réalisent des actions de réhabilitation dans les secteurs agriculture, santé, eau, assainissement, crédit agricole, etc.

Dans le secteur agriculture-forêt, les actions concernent la réhabilitation de barrages, de périmètres irrigués, la conservation des sols, la promotion de l'agrosylviculture, l'élevage et la recapitalisation des exploitations agricoles.

Les montants alloués varient de 100.000 à 1 million d'écus par projet.

- Le projet Unité Technique de Gestion du Programme de réhabilitation (UTG)

Financé dans le cadre du FED, ce projet a débuté en 1995 et finance des ONG qui réalisent des actions de réhabilitation et/ou de développement dans divers domaines, notamment: conservation de l'eau et du sol, agrosylviculture, agriculture intégrée en zone sèche, création de lacs collinaires, formation à l'aménagement des mornes, production de manguiers greffés et formation en greffage, fruticulture, pisciculture, petite irrigation, etc.

Le projet finance également des actions de réhabilitation d'infrastructures, notamment de pistes rurales et de petits périmètres irrigués.

Les montants alloués varient de 1,5 à 5 millions de gourdes par projet.

### 3.4.2.2. Les autres principaux bailleurs de fonds et les organisations non gouvernementales

#### 3.4.2.2.1. Les institutions multilatérales

Les principales agences des Nations-Unies exécutent ou soutiennent des projets ou programmes d'activités relatifs au développement rural et à la protection de l'environnement.

**La Banque Mondiale**

Après avoir soutenu le Projet Forestier National dans les années 80, la BM vient de débuter le financement d'un Projet d'Assistance Technique à la Protection des Parcs et des Forêts (PATPPF).

Ce projet est une version mise à jour de l'ancien Projet Forestier et de Protection de l'Environnement approuvé en 1991 et suspendu en 1994 pendant le régime militaire. Il s'inscrit dans la stratégie gouvernementale pour la protection et la réhabilitation de l'environnement.

L'objectif général est de démarrer la phase initiale d'interventions pour la protection des vestiges des écosystèmes forestiers d'Haïti et pour ralentir le rythme de dégradation des ressources naturelles du pays. Le projet doit fournir la base institutionnelle, politique et financière nécessaire au Gouvernement d'Haïti pour une protection soutenue des écosystèmes critiques à travers le pays.

**Les objectifs spécifiques sont de:**

- fournir un support institutionnel au MDE (Ministère de l'Environnement) et aux services concernés du MARNDR pour renforcer la capacité institutionnelle du Gouvernement à développer, assurer un suivi et implanter un système de protection des forêts et des parcs;

- initier des activités essentielles pour la protection et l'aménagement des parcs nationaux La Visite et Pic Macaya ainsi que la Réserve Nationale la Forêt des Pins;
- réduire la pression sur ces aires protégées en augmentant la productivité des parcelles paysannes et les opportunités d'emplois en dehors des exploitations agricoles, et en améliorant la capacité de gestion des organisations locales oeuvrant dans les zones-tampons des trois régions visées.

Le coût du projet, prévu pour une durée de cinq ans, est estimé à 22,5 millions US$.

A noter qu'en 1991, dans le cadre de la préparation du projet IDA "Forêts et Protection de l'Environnement ", la BM avait financé, dans le cadre du Programme ESMAP (Programme d'assistance à la gestion du secteur de l'énergie) une étude de Stratégie pour l'Energie Domestique en Haïti, à laquelle il a été fait référence ci-dessus.

**La Banque Interaméricaine pour le Développement (BID)**

Dans le domaine agricole, la BID finance essentiellement des projets d'aménagement et/ou de réhabilitation de périmètres d'irrigation et d'infrastructures hydro-agricoles, notamment dans l'Artibonite, basés sur un renforcement de la participation paysanne. Elle appuie également les actions de l'INARA. Dans le domaine des communications, la BID finance la réhabilitation de routes nationales et de pistes rurales.

**L'Organisation des Nations Unies pour l'Alimentation et l'Agriculture (FAO)**

De par sa vocation, la FAO prépare et assiste depuis plusieurs décennies l'exécution de différents projets agricoles et forestiers:

- dans les années 80, la FAO a soutenu plusieurs projets de développement rural, forestier et d'aménagement de bassin versant;
- actuellement la FAO intervient dans les projets suivants:
  1. En 1995, à la demande du MARNDR, le Centre d'Investissement de la FAO, appuyé par un groupe de consultants nationaux, a procédé à un diagnostic du secteur agricole, à l'élaboration d'une stratégie de développement concernant ce secteur et à l'identification de programmes d'investissement et d'assistance technique susceptibles d'être financés par l'aide internationale.
  2. Le projet " Appui au SDRT/MARNDR pour la mise en oeuvre de programmes de développement des terroirs et d'aménagement de bassins versants " (PRODETER).

     Commencé en 1996, ce projet a pour objectif principal d'appuyer les techniciens du MARNDR, tant au niveau central (SDRT, DRN) qu'au niveau décentralisé (DDA, BAC), la société civile (groupements et associations communautaires), les élus locaux, les ONG et tout autre acteur privé, pour la préparation et l'exécution de plans de développement durable des terroirs, avec une emphase particulière sur les actions de conservation et de restauration des sols. Trois grands axes d'activité ont été définis: (i) la formation et le recyclage des différents acteurs de développement, (ii) la réflexion et le développement d'approches de stratégies, de lignes directrices, de méthodologie et de techniques pour l'élaboration, l'exécution et le suivi de plans d'aménagement des terroirs, et (iii) assurer la bonne réalisation de certains projets financés par le PAM et le PNUD, en exécutant les plans de développement formulés.
  3. Le projet de développement de boutiques d'intrants, cofinancé par l'Union Européenne. Ce projet vise à accroître la productivité agricole par une assistance à la création de boutiques d'intrants en Haïti, sur base d'une approche participative.
  4. La FAO a initié en 1995 un projet de développement de lacs collinaires dans la région de Hinche (Plateau Central). Ce projet est actuellement exécuté par une ONG (Petits Frères de l'Incarnation) avec le soutien financier de l'Union Européenne. L'encadrement scientifique est assuré par la Faculté d'Agronomie et de Médecine Vétérinaire (FAMV). Il s'agit d'un projet de développement intégré visant à collecter et conserver les eaux de ruissellement pour les utiliser ensuite dans le cadre d'activités de pisciculture, d'agriculture et d'élevage.

5. La FAO prépare actuellement un projet de développement intégré basé sur une approche participative intitulé " Promotion de l'agriculture durable et de la conservation des eaux et des sols dans les montagnes humides en Haïti ", dans la région de Marmelade (Nord-Ouest du Plateau Central) avec un financement du Gouvernement des Pays-Bas (budget total prévu: US$5 millions pour 5 ans).

**Le Programme Alimentaire Mondial (PAM)**

Dans le domaine de la protection de l'environnement, le PAM soutient un programme " Vivres contre Travail (Food for Work) " comportant des actions de conservation des sols et des eaux dans des communes sélectionnées, dont la réalisation est assurée par le PRODETER. Afin de prioriser leurs besoins de façon plus objective, les leaders des communes sélectionnées ont été initiés aux méthodes participatives de diagnostic rural rapide. De plus des actions ponctuelles de formation sur certaines techniques de boisement, de compostage et de commercialisation de produits agricoles ont été entamées. La formation d'encadreurs communaux a aussi été réalisée.

**Le Programme des Nations Unies pour le Développement (PNUD)**

Dans le secteur agricole et environnemental, le PNUD soutient, depuis 1992, l'Unité de coordination et de suivi de l'environnement (ECMU), chargée de (i) faire la coordination entre les agences, les stratégies, les programmes et les projets liés à la protection de l'environnement; (ii) renforcer la capacité des bailleurs internationaux, des ONG, du secteur privé et éventuellement du Gouvernement à générer un plan, des fonds et à exécuter des programmes et des projets selon des stratégies établies; et (iii) fournir des informations quantitatives et qualitatives, interprétées de façon à faciliter leur utilisation par les différents intéressés potentiels (SIG - Systèmes d'Information Géographique). Dans ce cadre a été réalisée notamment une cartographie d'occupation des sols en Haïti au moyen de la télédétection. Très active depuis sa création, cette unité s'attache à réaliser des actions à travers les ONG locales. Elle apporte également un appui conceptuel au Ministère de l'Environnement.

Les projets financés par le PNUD dans les secteurs agriculture et environnement se répartissaient comme suit en 1996:

Programme Croissance économique et élimination de la pauvreté:

**Secteur agriculture:**

- Appui institutionnel au Ministère de l'Agriculture pour la production de semences
- Bassins versants et pisciculture
- Cellule de coordination des intrants agricoles
- Réhabilitation des réseaux d'irrigation / Arcahaie
- Réhabilitation et gestion des petits périmètres / Artibonite.

**Secteur développement rural intégré:**

- Développement du Plateau Central
- Développement du Nord-Ouest.

**Programme préservation et gestion de l'environnement:**

- Cellule de coordination pour l'environnement (ECMU)
- Contrôle de l'érosion: " Rete tè kenbe dio "
- Mise en oeuvre de développement des terroirs et d'aménagement de bassins versants.
- Plan National d'Action pour l'Environnement.

Par ailleurs, le PNUD cofinance avec d'autres bailleurs de fonds, notamment l'USAID, le Plan National d'Action pour l'Environnement (PNAE), dont les objectifs spécifiques sont: (i) définir et identifier les problèmes et les causes de dégradation en Haïti; (ii) établir des programmes destinés à la réhabilitation, la protection et la conservation de l'environnement (iii) déterminer et définir les moyens

nécessaires à la réalisation des objectifs du gouvernement sur le Plan de l'Environnement; et (iv) fixer le calendrier d'action pour la mise en oeuvre.

**Le Fonds International pour le Développement Agricole (FIDA)**

Le FIDA est en train de relancer le projet Petits Périmètres d'Irrigation (PPI), initié en 1990, qui prévoit la réhabilitation de 20 PPI (environ 3.000 ha au total), la mise en place de comités de gestion et la mise en valeur des terres.

**L'Institut Interaméricain pour la Coopération en Agriculture (IICA)**

L'IICA finance diverses actions dans le cadre du développement rural, notamment dans le domaine du crédit agricole et des transferts de technologie, ainsi que dans le domaine institutionnel (restructuration du MARNDR).

#### 3.4.2.2.2. La coopération bilaterale

**L'Agence des Etats Unis pour le Développement International (USAID)**

Un des objectifs du programme d'assistance au développement de l'USAID/Haïti pour les années 1995-1997 est de promouvoir une augmentation durable et équitable des revenus agricoles et urbains et des opportunités d'emploi tout en protégeant l'environnement. Dans ce cadre, l'USAID soutient plusieurs actions dont le projet Systèmes Durables Agricoles et Transformation Environnementale (ASSET).

Le projet ASSET a pour but d'augmenter la participation communautaire locale et la capacité d'identifier, de planifier et de gérer de manière durable l'utilisation des ressources naturelles et le développement urbain. Les activités couvertes par ce projet conduiront à:

a) l'établissement d'un cadre de référence de développement valable sur le plan de l'environnement;
b) l'accroissement de l'utilisation des pratiques de production agricole durable et des revenus des fermiers de montagne;
c) l'habilitation des communautés à planter des arbres et protéger l'infrastructure de production;
d) l'amélioration de la qualité de l'environnement dans les zones urbaines ciblées et la réduction de la pollution marine et des ressources côtières.

Les autres projets financés par l'USAID dans le secteur agricole concernent la promotion du commerce et des exportations, et la revitalisation du café, considéré comme une composante écologique valable dans un système de production pour les sols fragiles des montagnes, arrêtant ainsi l'érosion des sols, conservant l'eau et protégeant les infrastructures de production en aval.

Plus spécifiquement dans le domaine forestier, l'USAID soutien depuis 1992 le projet PLUS (Productive Land Use Systems - Systèmes d'utilisation productive des terres), dont les activités sont exécutées par des ONG telles CARE, PADF (Panamerican Development Foundation) et SECID.

PLUS est axé sur l'agroforesterie et la protection de l'environnement et basé sur la contribution des petits systèmes d'exploitation des versants montagneux du milieu haïtien. PLUS a été créé pour maximiser le potentiel productif de l'agriculture haïtienne sur les flancs des mornes en diminuant la dégradation croissante de la base des ressources naturelles du pays à travers des interventions soutenables d'utilisation du sol. Les éléments-guides du projet PLUS sont les suivants: amélioration de l'environnement à partir de pratiques appropriées d'agroforesterie; augmentation du revenu des paysans participants; renforcement des ONG locales et des groupes de paysans; approche de bassin-versant pour la conservation du sol; développement de technologies répondant aux besoins et demandes des agriculteurs; renforcement de la sécurité alimentaire, la sélection de variétés améliorées et la disponibilité de semences.

**L'Agence Canadienne pour le Développement International (ACDI)**

L'ACDI finance des programmes visant à la sécurité alimentaire ainsi que des activités de développement rural, exécutés par des ONG, notamment le CECI.

Dans le domaine de la conservation des sols, l'ACDI a soutenu notamment le projet DRIPP (Développement Régional Intégré de Petit-Goave et Petit Trou des Nippes). Actuellement est en préparation un projet d'aménagement de bassin versant dans cette même région, avec comme opérateur l'ONG OXFAM - QUEBEC.

**La Coopération Française**

En matière de développement rural, la coopération française est ancienne. Dans le domaine de la recherche/développement, la France a soutenu la mise en place de centres de recherche et formation (Madian-Salagnac, Dondon), en collaboration avec des institutions locales telle la FAMV. Des actions ont également été réalisées ou sont en cours dans le domaine de l'élevage (opération de repeuplement porcin rustique) et de l'irrigation (réhabilitation des périmètres irrigués de la plaine de l'Arcahaie, financée par la CFD, impliquant la prise en charge des réseaux d'irrigation par les usagers) et du renforcement institutionnel (MARNDR, MDE). En outre, par l'intermédiaire d'ONG spécialisées, une assistance alimentaire est fournie aux paysans des zones à déficit céréalier et un important programme de petits projets ruraux est réalisé concernant surtout l'accès à l'eau potable et le soutien d'activités productives susceptibles de freiner la décapitalisation des exploitations agricoles.

**La Coopération Allemande**

La GTZ soutient plusieurs projets de développement rural exécutés par des ONG.

#### 3.4.2.2.3. Les ONG diverses

Plusieurs centaines d'ONG interviennent dans le secteur agriculture-forêt-environnement. Les ONG constituent aujourd'hui un phénomène majeur dans le paysage politique et institutionnel d'Haïti. Les estimations les plus fiables parlent de 850 ONG de tous types opérant dans le pays. La taille et le domaine d'activités varient considérablement d'une ONG à l'autre.

Dans le domaine agricole, plusieurs ONG se sont techniquement affirmées au cours des dix dernières années, notamment:

- ASSODLO (Association Haïtienne pour la maîtrise des eaux et des sols en milieu rural), couvrant une gamme étendue d'activités agricoles ou rurales (routes de pénétration, approvisionnement en eau potable, protection de bassins versants, etc.) sur divers départements géographiques;
- CARE INTERNATIONAL, HAITI , importante ONG haïtienne intervenant dans tout le pays notamment dans les secteurs agricole et forestier, dans le cadre du projet PLUS (Productive Land Use System), de même que dans un projet de réhabilitation de périmètres irrigués dans le Nord-Ouest, le Projet Intégré du Sud et un projet d'horticulture urbaine;
- PADF (Pan American Development Foundation), ONG de droit américain, couvrant l'ensemble du pays, spécialisée en reboisement, notamment dans le cadre du projet PLUS;
- ORE (Organisation pour la Réhabilitation de l'Environnement), dont les activités se concentrent dans la plaine des Cayes, spécialisée en production de matériel végétal (notamment le greffage de manguiers) et de semences améliorées;
- les Ateliers-Ecoles de Camp-Perrin (Plaine des Cayes), spécialisés en production d'outils et équipements pour le monde rural;
- CECI (Centre Canadien d'Etude et de Coopération Internationale), ONG haïtienne financée principalement par le Canada (ACDI) et intervenant dans des activités relatives à la sécurité alimentaire de même que des actions de développement agricoles variées. En 1995, CECI a élaboré une proposition de stratégie pour la protection de l'environnement;
- PROTOS, ONG belge intervenant notamment dans le secteur de l'adduction d'eau en milieu rural ainsi que dans plusieurs sous-secteur du développement rural: reboisement, etc;
- SCF (Save The Children), ONG américaine intervenant notamment dans des programmes de défense et restauration des sols (Maïssade, Plateau Central);
- HAVA (Haïtian American Volountary Agencies - association haïtienne des agences bénévoles), à vocation initiale de coordination, spécialisée notamment dans le crédit agricole à des groupes de différents types ayant des projets présentant une certaine forme de rentabilité;

- GRD/GRAMIR (Groupe de Recherche en Développement et d'Appui au Milieu Rural) et CRS (Catholic Relief Service), également impliqués dans des activités de crédit agricole.

On peut encore citer SECID (Agrosylviculture), CARITAS (Divers, conservation des sols), MENNONITE CENTRAL COMMITTEE, AGRO-ACTION ALLEMANDE, PRODEVA (Promotion du développement Autonome), VETERIMED (Médecine Vétérinaire), de même que l'ANDAH (Association Nationale des Agro-professionnels Haïtiens) qui a effectué un ensemble d'études sur l'agriculture haïtienne depuis 1987 et a également mené plus récemment des travaux d'étude sur l'évolution du secteur agricole dans le contexte de crise économique.

De nombreuses ONG opérant en milieu rural n'ont aucune option technique particulière. Certaines se concentrent sur une aire géographique et/ou des actions de mobilisation populaire, tel le MPP (Mouvement Paysan Papaye à Hinche et l'IDEA (Institut Diocésain d'Education et d'Alphabétisation), au Cap. D'autres enfin sont liées à un effort d'évangélisation comme l'IRD (Institute for Rural Development) aux Cayes.

**Critique de l'action des ONG**

Selon la FAO, si le travail des ONG a été essentiel pendant les périodes où l'état apportait peu d'attention au milieu rural ou pendant les périodes de crise, le recours systématique aux ONG pour assurer toutes les activités en milieu rural devrait être revu.

La critique principale pouvant être adressée à l'action des ONG est, sauf exception, l'absence flagrante de coordination entre leurs différents programmes d'activités. Ceci cause un sérieux problème d'émiettement de leurs efforts et remet en cause la rentabilité des actions qui prennent place dans un tel cadre.

D'autre part, au cours des dernières années, des offres de travail ont été faites par des bailleurs de fond à des ONG en vue de la réalisation d'actions n'entrant pas dans leur domaine de compétence tels des " travaux à haute intensité de main d'oeuvre (HIMO) " ou " de création d'emploi ". Les ONG sont, dans ce cas, poussées à l'inefficacité par les bailleurs de fonds qui leur demandent soit un trop grand déploiement géographique, soit un travail en dehors de leur champ d'action. On est donc amené à se poser la question de l'efficacité de leurs actions.

Enfin, selon la Banque Mondiale, une leçon importante tirée des projets d'agroforesterie réalisés par des ONG est que de tels efforts entrepris parallèlement aux structures gouvernementales finissent par affaiblir la capacité du gouvernement (en offrant de meilleurs salaires et conditions de travail au personnel qualifié, drainant ainsi les cadres du Ministère) et augmentent même le ressentiment et la méfiance entre le gouvernement et les ONG. Le Projet d'Assistance Technique pour la Protection des Forêts et des Parcs (PATPFP) a l'intention de tenir compte de ces leçons en contractant des ONG qualifiées pour promouvoir des technologies d'agriculture de montagne qui ont fait leur preuve, sous la stricte supervision technique des autorités gouvernementales. Ainsi, le projet cherche à construire un partenariat positif entre les ONG et le Gouvernement où chaque partie bénéficie du rôle et de la compétence de l'autre.

**Approche de solution**

La plupart des problèmes évoqués ci-dessus trouvent leur origine dans l'absence de coordination réelle entre les différents intervenants. Si cette lacune pouvait se concevoir dans un contexte de crise, notamment suite à l'embargo et à la nécessité d'apporter rapidement une aide alimentaire, il apparaît actuellement nécessaire - et il semble possible - de développer une concertation devant permettre d'accroître l'efficacité de l'aide.

Malgré l'instabilité politique latente, seul l'Etat apparaît en mesure d'assurer cette concertation, notamment par le biais du Ministère de la Planification et de la Coopération Externe.

Une meilleure circulation de l'information concernant les projets en cours ou planifiés permettrait certainement de faciliter la coordination des activités; l'information pourrait se faire par exemple par l'intermédiaire d'un bulletin d'information édité par la Cellule de coordination pour l'environnement

(ECMU) du PNUD en collaboration avec les institutions de formation et de recherche telle la FAMV ou l'Université Quisqueya.

Les représentants des principaux bailleurs de fond internationaux et bilatéraux se réunissent occasionnellement dans le but d'harmoniser leurs programmes généraux d'aide au développement. Au niveau sectoriel, la coordination devrait être initiée par les organes compétents, à savoir le MARNDR pour le secteur agricole et forestier, le MDE pour l'environnement, ainsi que par des commissions interministérielles, par exemple pour le développement et la protection des forêts, dépendant à la fois du MARNDR et du MDE. Ces commissions seraient appuyées par des projets existants tel le PRODETER qui pourrait assurer la coordination des actions effectuées en matière d'aménagement des bassins versants en élaborant un schéma directeur d'aménagement de ces bassins versants.

Aux niveaux départemental et communal également, une mise en oeuvre et/ou un renforcement de la coordination entre les différents projets s'avèrent fondamentaux et devraient être facilités par le renforcement des institutions locales dans le cadre de la décentralisation, comme les Directions Départementales de l'Agriculture (DDA) et les Bureaux Agricoles Communaux (BAC).

# 4. BILAN DES ACTIONS REALISEES DANS LE SECTEUR DE LA CONSERVATION DES RESSOURCES NATURELLES

## 4.1. Les projets essentiellement forestiers

De nombreux projets de reboisement ont été ou sont actuellement menés en Haïti, à des échelles diverses, principalement dans le cadre de l'aide non gouvernementale au monde rural haïtien. Les principales expériences passées peuvent se résumer comme suit:

- l'Opération Double Harvest de CARE, une des 4 composantes du Projet forestier " Agroforestry Outreach Project (AOP) ", financé par l'USAID de 1981 à 1989, visait la mise en oeuvre de plantations périurbaines sur des terres appartenant à des grands propriétaires: ce projet a été arrêté en 1987 en raison principalement du manque d'intérêt des propriétaires terriens;
- le Projet Forestier National (BM, 1982-1989), comportait un volet de plantations énergétiques pilotes - création de 350 ha de plantations - et visait la mise en valeur partielle de la Forêt des Pins); ses résultats ont été relativement décevants en raison du manque de fonds de la contrepartie, des réactions négatives des populations rurales et de l'influence de facteurs externes (climat, bétail);
- l'approche " agroforesterie ", visant à promouvoir divers modes de plantations intégrées aux pratiques culturales haïtiennes, fut appliquée dans le cadre du Projet AOP dans le nord-ouest du pays et du projet " Pyebwa " à travers un réseau de plus de 400 ONG dans le reste du pays. Le BDPA (cité par ESMAP - 1991) a estimé que, dans le cadre de ces projets, et d'autres moins importants, de l'ordre de 8 millions d'arbres ont été ainsi plantés chaque année au cours de la décennie 80, dont environ 40% auraient survécu, soit 3 millions d'arbres par an.

L'analyse des différentes expériences forestières réalisées jusqu'ici fait apparaître la nécessité de:

- prendre en considération les contextes socio-économiques locaux pour la gestion des ressources forestières;
- promouvoir une mobilisation des populations rurales pour la protection ou la restauration d'un patrimoine forestier multifonctionnel dans la valorisation duquel elles trouveraient leur intérêt.

Par ailleurs il est impératif de mettre en place une politique claire en matière forestière et une capacité institutionnelle adéquate qui garantissent une bonne coordination des activités forestières et agroforestières au niveau central et décentralisé, un appui durable aux différentes activités, une

décentralisation de la gestion des ressources forestières, ainsi que le maintien et la protection des investissements à long terme.

## 4.2. Les projets relatifs à la conservation de l'eau et du sol dans les bassins versants

Deux types de projets sont intervenus dans la protection des bassins versants (selon CECI, 1995, cité par FAO)

a) Les projets réalisés par l'administration tels que:

- les grands programmes nationaux d'intervention systématique (Programme d'intervention systématique - PISN, Organisme de développement du bassin du fleuve Artibonite - ODBFA, Société nationale des amis de l'arbre - SONAMAR, Projet de reboisement et de lutte contre l'érosion - FAO/PAM);
- les projets régionaux avec d'importants volets de conservation des sols/reboisement (DRIPP, DRI-JER, ODN, ODONO, etc).

b) Les projets réalisés par les ONG parmi lesquels on distingue:

- les projets bilatéraux (HACHO, Fonds agricole, FONDEV) utilisant souvent le "Food for Work" pour réaliser les travaux anti-érosifs;
- les ONG internationales (CARE, PADF, ADRA), qui remplacent progressivement le Food for Work par d'autres formes d'encouragement, avec un peu plus d'intégration aux jardins des paysans;
- les ONG encadrant des organisations paysannes qui ne paient pas les travaux mais donnent un appui en outils et formation; elles privilégient la participation volontaire et les techniques légères, reproductibles et souvent biologiques de conservation des sols sur les parcelles paysannes.

Globalement, tant pour les projets nationaux que pour ceux exécutés par les ONG, les résultats ont rarement été à la hauteur des espérances. L'analyse des différentes actions permet de tirer les enseignements suivants

- outre les aspects purement techniques liés au problème de la conservation des ressources naturelles, il faut considérer les aspects économiques, sociologiques et écologiques;
- il importe de privilégier la participation volontaire des populations locales ainsi que des techniques de conservation des sols dont elles puissent assurer la maîtrise.

Les principales contraintes affectant la durabilité d'un grand nombre de projets réalisés jusqu'à présent se résument comme suit:

- l'accroissement de pression démographique;
- la disparité entre les objectifs des projets et ceux des paysans;
- l'inadéquation entre les techniques proposées et le potentiel de maîtrise technologique local;
- l'approche trop sectorielle et limitée des problèmes;
- l'éducation trop limitée et inappropriée en milieu rural;
- la rentabilité des opérations effectuées mal perçue par les communautés rurales;
- l'appropriation des principaux bénéfices des projets par des individus ou groupes d'individus bien placés.

# 5. PROPOSITION D'UNE STRATEGIE D'INTERVENTION DE L'UNION EUROPEENNE

## 5.1. LES BASES STRATÉGIQUES

Cette stratégie est élaborée en prenant en compte:

- les orientations de la politique gouvernementale en matière de production agricole et de protection de l'environnement;
- les objectifs stratégiques propres de l'Union Européenne;
- et enfin les conclusions du bilan ci-dessus.

## 5.2. La problématique du reboisement "pérennisable"

L'analyse des expériences des projets de reboisement réalisés jusqu'ici a fait apparaître un échec du reboisement

- conçu comme une action à part
- exécuté dans le cadre de projets à court terme
- exécuté par des organismes peu stables, non susceptibles d'en assurer le suivi à long terme.

Les principales conditions de réussite de ce type de projet sont:

- la prise en considération des débouchés et objectifs des plantations dans le choix des espèces et des traitements sylvicoles;
- la prise en considération des problèmes fonciers, économiques et sociologiques dans le choix des zones reboisées;
- le développement de la participation et de l'intéressement des populations locales dans la planification et la gestion des plantations.

La difficulté, pour ne pas dire l'impossibilité de réunir ces conditions favorables ne permet pas actuellement d'envisager la rentabilité de ce type de reboisement, en terme d'investissement.

Par ailleurs, les essais d'introduction et de diffusion d'arbres dans les exploitations agricoles, notamment par les ONG, n'ont pas connu de meilleur succès essentiellement en raison:

- du désintéressement des paysans non convaincus de la rentabilité de ces opérations,
- du manque d'encadrement des populations cibles,
- du caractère éphémère de ces interventions,
- de la faiblesse d'intégration de ces projets isolés,
- de la crainte des paysans de perdre les superficies qu'ils cultivent.

Les facteurs de réussite les plus importants apparaissent donc être:

- l'adhésion des populations locales, qui ne peut être garantie que par la perspective d'une amélioration immédiate du revenu tiré de l'exploitation agricole des paysans et de la compréhension de la nécessité et du bien fondé du reboisement et de la conservation de l'environnement,
- la durabilité et le suivi à long terme des actions entreprises,
- l'intégration, dans la mesure du possible, de chaque projet dans un contexte régional et national favorable au développement de l'agriculteur et de sa famille,

- l'introduction d'activités extra-agricoles rentables en milieu rural.

En définitive, l'approche la plus réaliste semble être de concevoir le reboisement comme un volet de la stratégie d'ensemble pour l'aménagement du milieu rural en général et pour la production agricole en particulier. Le reboisement conçu comme une action à part pourrait toutefois être envisagé dans des conditions particulièrement favorables ou, dans l'avenir, en supposant une évolution sensible de la situation actuelle, à un moment où les contraintes citées ci-dessus pourront être levées.

Même dans ce cas, pour être définitivement viable, le reboisement doit bénéficier de mesures d'accompagnement importantes notamment:

**à court et moyen terme:**

- des mesures en faveur de l'éducation en milieu rural pour garçons et filles et pour hommes et femmes;
- des mesures visant à la consolidation de la production nationale vu l'absence de compétitivité et la faiblesse technique des exploitations agricoles en particulier et des entreprises haïtiennes en général;
- la mise en oeuvre de moyens suffisants pour protéger, agrandir et augmenter au fur et à mesure les parcs nationaux et les réserves forestières;
- l'instauration d'une politique énergétique nationale qui tienne compte de la potentialité de production de combustibles ligneux du pays.

**à plus long terme:**

- la mise en place de mécanismes de sécurisation sociale et de solidarité nationale efficaces en milieu rural;
- le développement de l'emploi dans les secteurs autres qu'agricole afin d'offrir des alternatives à une partie de la main d'œuvre rurale;
- l'instauration de mesures visant l'amélioration du niveau de vie des exploitants agricoles.

Toutes ces mesures doivent tendre à réduire la pression démographique en milieu rural et à passer d'une agriculture de subsistance au développement d'exploitations professionnelles.

## 5.3. L'aménagement intégré des bassins versants

### *5.3.1. Les principes*

L'aménagement des bassins versants doit se baser sur les principes suivants:

1. une vision globale des problèmes qui implique de considérer comme unité d'intervention de base des groupes de parcelles individuelles et collectives (associations, groupements...) définis en fonction de critères techniques et sociologiques locaux;
2. un encadrement important des populations locales afin des les amener à une participation active, intéressée et durable à la planification, aux aménagements et à leur entretien et nécessairement des négociations entre tous les partenaires concernés (producteurs, organisations locales représentatives, secteur privé, ONG, services de l'Etat);
3. des techniques de conservation des eaux et des sols qui sont compatibles avec les logiques paysannes de rentabilité globale à court terme, basées sur l'amélioration des techniques culturales traditionnelles et intégrées dans les systèmes culturaux.

### 5.3.2. Les intervenants

Toutes les actions de développement rural et de soutien à l'agriculture haïtienne doivent nécessairement s'inscrire dans le cadre institutionnel qui sous-tend la campagne haïtienne. Les interlocuteurs obligés de toute intervention sont donc:

- le MARNDR, dans ses structures centrales et locales,
- les conseils communaux ou les CASEC,
- les ONG,
- les groupements et associations paysannes,
- les coopératives et caisses populaires,
- les groupes " techniques " (ex: comités d'usagers des systèmes d'irrigation),
- les syndicats de producteurs,
- les cultes,
- les établissements locaux de formation.

## 5.4. Méthodologie d'intervention de l'Union Européenne

### 5.4.1. Les interventions directes

*Définition d'une logique d'intervention*

Dans l'optique d'une réduction de la dégradation des ressources naturelles et de l'environnement, la logique d'intervention de l'Union Européenne devrait se baser sur l'hypothèse selon laquelle le potentiel d'accroissement des terres cultivées sous irrigation permettra de recentrer les activités agricoles dans les plaines et les fonds de vallées en libérant les sols sensibles à l'érosion des pratiques qui les fragilisent actuellement et handicapent la longévité des ouvrages de capture des eaux utiles à l'irrigation.

Le succès des opérations de protection des sols sensibles à l'érosion dépendra:

- de la mobilisation des exploitants agricoles dans les périmètres irrigués; en toute logique, à l'exception des travaux d'endiguement des eaux liés à la réhabilitation et à l'amplification des infrastructures de rétention des eaux d'irrigation, l'aménagement des mornes ne devrait intervenir que suite à la réduction de la pression exercée sur ces terres par les paysans qui les exploitent actuellement;
- de la compréhension , sinon de la conviction, par les paysans qu'ils sont engagés dans la voie du progrès; ceci étant l'objectif du projet et cet objectif étant compris et accepté par eux, ils sont disposés à y collaborer;
- de la compréhension , sinon de la conviction, par les paysans que la conservation et la protection de l'environnement relève de leur compétence et conditionne la productivité de leurs terres et leur avenir propre;
- de la conscience que les paysans et les intervenants divers auront de la solidarité qui doit exister entre les habitants du bassin versant et que cette solidarité est indispensable à la survie de tous.

Elaboration, mise en oeuvre et suivi/évaluation d'un projet pilote d'aménagement intégré de bassins versants dans un site représentatif de la situation haïtienne.

L'objectif global du projet est l'amélioration de la production agricole vivrière en Haïti parallèlement à la protection et à la restauration de la couverture forestière. La réalisation de cet objectif doit contribuer à la mise en oeuvre de la politique agricole nationale dans le cadre du 8° FED.

L'objectif spécifique est d'aménager les bassins versants d'un site pilote sur base d'une approche intégrée et participative (ou coopérative). Ce processus doit permettre de fournir des enseignements

et des directives d'aménagement de bassins versants, dont l'application sur un nombre important de stations similaires en Haïti devrait contribuer à atteindre l'objectif global.

Cette approche , si elle se révèle fructueuse, pourra être généralisée à l'ensemble d'une région ou du pays tout entier, bien entendu, avec des conditions macro-économiques propices.

Les résultats de ce projet seront:

1. Elaboration et mise en application d'un plan d'aménagement du territoire et de gestion des ressources naturelles du site du projet.
2. Formation des agents du projet et des paysans aux méthodes de:
   - structuration de l'exploitation agricole;
   - intensification de l'agriculture dans les vallées;
   - développement d'activités para-agricoles;
   - protection des bassins versants contre l'érosion;
   - amélioration de la structuration des exploitations;
   - conduite de l'élevage, de la pisciculture et de l'apiculture;
   - conservation et commercialisation des produits agricoles;
   - mise en oeuvre de systèmes agro-sylvo-pastoraux durables dans les mornes.
3. Structuration des exploitations agricoles (exploitations individuelles, groupements, coopératives, sécurité foncière).
4. Intensification de l'agriculture dans les fonds de vallées.
5. Développement d'activités para-agricoles.
6. Protection des bassins versants contre l'érosion et réduction des pratiques d'utilisation du sol néfastes à l'environnement.
7. Mise en oeuvre de systèmes agro-sylvo-pastoraux durables dans les mornes.
8. Evaluation permanente des activités réalisées et des résultats obtenus, destinée à l'élaboration de directives d'aménagement de bassins versants.

Ce projet serait réalisé sur le site de Cerca-la-Source, dans le Plateau Central. Une proposition de projet spécifique a été soumise à l'Union Européenne, intitulée: *"Projet pilote d'aménagement intégré et participatif de bassin versant. Proposition de financement."*

### 5.4.2. Les interventions complémentaires

- Participation financière à des programmes et projets exécutés par d'autres organismes dans le domaine de la protection de l'environnement et l'aménagement des bassins versants tels l'ECMU et le PNAE.
- Initiation ou participation à l'élaboration et la mise en application d'un Schéma Directeur d'Aménagement des Bassins Versants en collaboration avec les autres agences concernées.

Les principaux éléments visant à l'élaboration de ce schéma seraient les suivants:

  - examen de l'état actuel de tous les bassins versants du pays;
  - identification des bassins versants prioritaires dans l'optique d'une intervention visant à réduire la dégradation de l'environnement;
  - analyse de la problématique de chaque bassin versant prioritaire et de l'ensemble d'entre eux;
  - élaboration d'un document d'orientation sur l'aménagement des bassins versants comportant une liste des problèmes particuliers et une liste des problèmes communs;
  - formulation du programme d'aménagement des bassins versants sur base d'un scénario d'options relatives aux problèmes identifiés.
- Mise en oeuvre ou participation à un programme national d'approvisionnement en énergie domestique visant à satisfaire les besoins énergétiques en assurant une offre suffisante de produits ligneux et en favorisant la substitution au bois énergie de produits pétroliers, tout en tenant compte de l'impact environnemental à long terme du rejet des déchets gazeux dans l'atmosphère.

- Participation à l'aménagement de parcs et de réserves effectivement protégés.
- Participation à la mise en place d'autres projets pilotes d'aménagement de bassins versants.
- Collaboration à l'extension régionale de l'approche proposée.
- Collaboration à l'extension nationale de l'approche proposée.

## 5.5. Chronologie des interventions

### *5.5.1. Les interventions possibles à long terme*

- Mise en application et suivi d'un Schéma Directeur d'Aménagement des Bassins Versants.
- Mise en oeuvre ou participation à un programme national d'approvisionnement en énergie domestique.
- Mise en oeuvre ou participation à un programme régional ou national d'Aménagement des Bassins Versants en Haïti.

### *5.5.2. Les interventions possibles à court terme*

- Définition d'une stratégie d'intervention en matière d'aménagement de bassins versants.
- Élaboration et mise en oeuvre d'un projet pilote d'aménagement intégré et participatif de bassins versants.
- Extension du modèle de projet pilote à d'autres sites appropriés.

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Volume 2: (1) Tenure foncière (2) Organisations rurales (3) Cadre macro économique (4) Aspects nutritionnels et alimentaires (5) Milieu physique (6) Production agricole.

Volume 3: (7) Irrigation (8) Gestion et conservation des ressources naturelles (9) Pêche et aquaculture (10) Aspects du crédit rural (11) Commercialisation (12) Voies de communications rurales (13) Micro et petites entreprises rurales (14) Compétitivité de l'agriculture.

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# ANNEXE 1: LES INSTITUTIONS PUBLIQUES DE GESTION DU SECTEUR FORESTIER

**Ces institutions comprennent:**

- le Service des Forêts (SF) de la Direction des Ressources Naturelles (DRN) du Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural (MARNDR): statutairement responsable des forêts;
- le Service de Défense et Restauration des Terres (SDRT) de la DRN/MARNDR, chargé de la planification et de la coordination des activités de conservation des sols, ainsi que le Secrétariat Technique à l'Aménagement de Bassins versants (STABV);
- le Service des Parcs Nationaux et Sites Naturels (SPNSN) du MARNDR, établi temporairement et devant être transféré au Ministère de l'Environnement;
- la Direction Générale des Impôts du Ministère des Finances, chargée de gérer le domaine privé de l'état;
- le Bureau des Mines et de l'Energie du Ministère des Travaux publics, du Transport et des Communications, chargé de promouvoir l'utilisation rationnelle de toutes les sources d'énergie dont le bois et les énergies de substitution au bois;
- le Ministère de l'Environnement (MDE), créé en 1995, qui doit assurer le suivi des impacts environnementaux des différentes activités sectorielles et de la gestion des parcs;
- on peut y ajouter, le Centre de Recherches et de Documentation Agricole (CRDA) du MARNDR, l'Institut Pour la Sauvegarde du Patrimoine National (ISPAN) ainsi que l'Office National du Tourisme qui interviennent dans la gestion des parcs, et enfin le Ministère de la Planification et de la Coopération Externe, chargé du suivi des ONG et de l'aménagement du territoire;
- en matière de formation, il existe une Direction de Formation et de Perfectionnement des Cadres (DFPC) du MARNDR et un Centre de Formation en Aménagement Intégré des Mornes, à Limbé, créé en 1980 avec l'appui du PNUD et de la FAO;
- la formation des Ingénieurs Agronomes est assurée par la Faculté d'Agronomie et de Médecine Vétérinaire de l'Université d'Etat d'Haïti (des Ingénieurs Agronomes sont également formés par un organisme privé, à savoir l'Université Quisqueya et Roi Henry Christophe).

# ANNEXE II - LES ORIENTATIONS GOUVERNEMENTALES ET LES INSTITUTIONS NATIONALES DU SECTEUR AGRICULTURE -FORET ENVIRONNEMENT

En 1996, la politique de développement économique du gouvernement a été redéfinie selon deux axes stratégiques:

**a) augmentation des capacités de production**

- d'une part du système agro-alimentaire en vue d'atteindre une sécurité alimentaire et de dynamiser les exportations; à cette fin, les mesures envisagées sont concentrées dans les régions à haut potentiel productif (essentiellement les plaines), via de grands travaux de construction pour la conservation de l'eau et du sol en amont (les montagnes); une réforme agraire est prévue suivant quatre axes: plaines, montagnes, zones périurbaines et terres de l'Etat, de même que la réhabilitation des structures productives et la mise en place d'un système de crédit au bénéfice des agriculteurs et des coopératives;
- d'autre part des industries à base de matières minérales non métalliques;

**b) augmentation des ressources en devises par la sous-traitance, le tourisme, l'artisanat et les industries à base de matières minérales métalliques.**

Des mesures d'accompagnement sont également prévues: développement des infrastructures, réforme fiscale, promotion des investissements privés, promotion du commerce extérieur, réduction des dépenses de l'Etat.

Dans le secteur agriculture-forêt les orientations de la politique gouvernementale sont définies et mises en oeuvre par le Ministère de l'Agriculture et des Ressources Naturelles (MARNDR). Redéfinie en 1996 sur la base de la stratégie du gouvernement, la politique sectorielle du MARNDR, privilégie les axes suivants:

- la maîtrise de l'eau;
- l'amélioration des conditions de la production agricole;
- la promotion de l'agro-industrie;
- l'organisation et la recherche des marchés agricoles;
- le renforcement de la recherche agricole;
- le renforcement et la dynamisation de l'Etat.

Plus spécifiquement la maîtrise de l'eau implique la création d'ouvrages de retenue d'eau couplés à des systèmes d'irrigation, des travaux d'aménagement des ravins, et la promotion d'une agriculture conservationiste en amont des systèmes d'irrigation. D'autre part l'amélioration des conditions de la production agricole vise notamment à favoriser la sécurité foncière, à responsabiliser les usagers à la gestion des périmètres irrigués, à réguler le marché des intrants agricoles et à favoriser le crédit agricole.

En matière de protection de l'environnement, le gouvernement considère la préservation des écosystèmes restants à Haïti et la réhabilitation de ses ressources naturelles comme prioritaires. En outre, le gouvernement a l'intention d'identifier des problèmes environnementaux plus larges et des réformes politiques correspondantes à travers le Plan National d'Action Environnemental (PNAE) et l'Evaluation de la Pauvreté. Le MARNDR avait pour mandat principal d'élaborer et de faire appliquer les politiques et les lois sur les ressources naturelles, mais n'avait ni les moyens financiers, ni les ressources humaines pour remplir son rôle de contrôle et de développement. C'est dans cette optique que le nouveau Ministère de l'Environnement (MDE) a été créé.

# LISTE DES ABREVIATIONS

| | |
|---|---|
| ACDI | Agence Canadienne pour le Développement International |
| BAC | Bureau Agricole Communal |
| BDPA | Bureau pour le Développement de la Production Agricole |
| BID | Banque Interaméricaine pour le Développement |
| BM | Banque Mondiale |
| BME | Bureau des Mines et de l'Énergie |
| CASEC | Conseil d'Administration des Sections Communales |
| CFD | Caisse Française de Développement |
| DDA | Direction Départementale de l'Agriculture |
| ESMAP | Programme d'Assistance à la Gestion du Secteur Énergétique |
| FAMV | Faculté d'Agronomie et de Médecine Vétérinaire |
| FAO | Organisation Internationale pour l'Alimentation et l'Agriculture |
| FED | Fonds Européen de Développement |
| FIDA | Fonds International pour le Développement Agricole |
| GTZ | Agence Allemande pour le Développement |
| HIMO | Haute Intensité de Main d'Oeuvre |
| INARA | Institut National pour la Réforme Agraire |
| MARNDR | Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural |
| MPCE | Ministère de la Planification et de la Coopération Externe |
| MDE | Ministère de l'Environnement |
| ONG | Organisation Non Gouvernementale |
| PAM | Programme Alimentaire Mondial |
| PNAE | Plan National d'Action pour l'Environnement |
| PPI | Petit Périmètre Irrigué |
| PUND | Programme des Nations Unies pour le Développement |
| SDRT | Service de Défense et Restauration des Terres |
| UEH | Université d'État d'Haïti |
| USAID | Agence des Etats Unis pour le Développement International |

# REVIEW OF FORESTRY POLICIES IN JAMAICA

**by K. Hall**

## 1. MEANING OF FORESTRY IN JAMAICA

Almost all of the land surface was covered with forest when Columbus landed in Jamaica in 1494 and except for scattered clearings for farming and coastal settlements, it remained untouched up to 1665 when the country became a British Colony. A contemporary report on the forests of Jamaica by E.D.M. Hooper in 1886 provides a detailed account of the state of the forest after over 200 years had elapsed (12).

Because of wide differences in rainfall, topography, altitude, geology and soils, the vegetation of the country has been correspondingly diverse, providing a wide range of forest uses and benefits. Many of these roles have survived in spite of widespread deforestation that has reduced the national forest cover to an estimated 17 percent of the total land area in mainly inaccessible areas.

The different roles and benefits of Jamaica's forests, of which the main ones are summarized below, point to a number of different target groups and stakeholders. Representatives from these groups suggest that, because of its differing roles, forests and forestry mean different things to different people within the Jamaican society.

### 1.1 Timber Producing Role

Until 1942 when the Forest Department (FD) was formally established, the most important role of the forest in Jamaica was as a timber supply source for the growing construction and furniture sectors, both locally and overseas. Without adequate forest management systems in place during this period, it was only natural to expect that the heavy and wasteful exploitation which followed over the years would lead to widespread destruction from which the forest has not recovered. What remains is essentially secondary growth, commonly called ruinate, in different stages of development.

Modest attempts at resolving the problem through reforestation projects peaked during the 1960s/1970s only to have this work undone by the ravages of hurricane Gilbert in 1988 and the policy of the government to harvest through its state owned Forest Industries Development Company (FIDCO) the remaining plantation stands without replanting of a single stand during the period from 1990 to the present.

### 1.2 Watershed Management

The role of the forest in safeguarding the nation's water resources became evident from as far back as 1885 when attention was focussed on a period of successive years of low rainfall and failing streams. According to Swabey, there was at the time (1935) a strong body of public opinion which held the view that this was a direct result of the cutting down of the forests due to expanding agriculture and the steady development of the country as a whole (18). To some extent, this notion still persists, although it is now widely accepted that in this connection, the role of the forest is in its influence on what happens to rain after it falls, in terms of water quality and yield and the control of soil erosion.

Because of the strategic position of dwindling forests at the head-waters of all of the country's watersheds, most of which have been classified as being in critical condition, governmental interventions, since 1945, in support of strategies to safeguard and protect them, have been numerous

and strong in intent if lacking in the realisation of any long lasting benefits or improvements to this aspect of the environment.

## 1.3 Soil and Water Conservation

Coupled with the above-mentioned has been the recognition that forests have a major role in reducing the impact of flood waters, controlling erosion and protecting agricultural production both on steep slopes, where this activity is prevalent, and downstream. As a matter of expediency or maybe due to the firm conviction of forestry's role in this connection, in 1978 the Department of Forestry was merged with the Soil Conservation Unit of the Ministry of Agriculture to form the Division of Forestry and Soil Conservation (FSCD) with responsibility for the conservation of forests, soil and water resources under the Ministry of Agriculture. The union was disbanded in 1996, ending an eighteen year relationship during which the two Divisions operated as two loosely related disciplines, at times with insufficient and inadequately trained soil conservation staff.

## 1.4 Wildlife and Biodiversity

As a consequence of the wide range of environments created by the varied geology, topography, elevation and micro-climates, biodiversity is high and a significant proportion of Jamaican wildlife is endemic. Recognition of the importance of Jamaica's wildlife and biodiversity gained momentum in recent years with the establishment of a National System of Protected Areas based on a number of studies undertaken in the 1960's. Support from Non-Government Organizations (NGOs), some with a long history of active interest in the conservation of the country's wildlife and rich biodiversity, has been outstanding and they continue to play an increasingly important role in promoting and initiating useful action programmes.

## 1.5 Forest Recreation and National Parks

Jamaica's reputation as a country of great scenic beauty has been largely due to its network of mountains and steep hills visible from any part of the country. The fact that this upland country has always had, and to a lesser extent still appears to have, a tree cover, has been a major factor influencing this description. Nationals and visitors have made use of this aspect and since its inception, the Forest Department, with modest means at its disposal, has identified and developed this role by establishing modest park and recreation centres, a trail system and camp sites for public use. This forest role gained momentum with the Gazetted declaration in 1993 of all forest reserves in the Blue and John Crow Mountains as part of a National Park System under the portfolio of the Natural Resources Conservation Authority (NRCA) of the Ministry of Environment and Housing.

## 1.6 Fuelwood

The forest has always been a major source of energy for the rural and to a lesser extent the urban population starting with the gathering of dead wood from privately owned and public forests. The rapid expansion of urban areas and the massive unplanned land clearing for agriculture, during the early decades of the twentieth century, paradoxically not only resulted in deforestation but provided substantial supplies of fuelwood, temporarily reducing the pressure on the remaining natural forest.

# 2. SOCIO-ECONOMIC PROFILE

Jamaica operates as a mixed, free market economy with state enterprises, as well as private sector business. Supported by multinational financial institutions, Jamaica has, since the early 1980s, sought to implement structural adjustment policies aimed at fostering private sector activity and increasing the role of market forces in resource allocation. During this period, emphasis has been placed on

maintaining a strict fiscal discipline, a greater openness to trade and financial flows, market liberalization and a reduction in the size of government.

Performance in the economy during the 1996/97 fiscal year was highlighted by the deceleration in the inflation rate to 9.5 percent, compared to 30.8 percent for FY 1995/96. This decline was the continuation of a trend since FY1991/92 when the inflation rate reached a high of 105.7 percent. Other positive economic developments during 1996 included a substantial slowing of the Import growth to 3.0 percent, from 26.8 percent in 1995; a continuation of relatively high levels of private capital inflows and the relative stability in the foreign exchange market (17).

Major sectors of the economy include agriculture, mining, manufacturing, and tourism, as well as the insurance and financial services. Between 1986 and 1990, the economy grew in real terms at an average annual rate of 4.9 percent before slowing to 1 percent between 1991 and 1995. While positive performance continued in some of the main goods producing sectors, particularly agriculture and mining, difficulties in the manufacturing sector, as well as negative growth in the financial and insurance services sector, limited overall growth during 1996.

On the social side, the rural drift to urban centres persists and the erosion of the standard of living of most Jamaicans as a result of prolonged structural adjustment programmes, has led to the emergence of the 'working poor'. Sustained inner-city violence linked to drug abuse and trafficking remains a problem.

In an attempt to address the issues of poverty and social decay, the Government has started a National Poverty Eradication Programme, with a Social Investment Fund of US$50 million financed largely from a World Bank loan. The recently developed Project for Resettlement And Integrated Development of Enterprises (PRIDE), intended to address inappropriate land use and squatter settlements, has been impacting favourably on the target groups concerned.

With respect to the issue of governance, the Local Government Reform Programme which started in 1990 has been proceeding satisfactorily. Through the programme, attempts are being made to restore to local Parish Councils most of the functions and responsibilities which were handled by them prior to centralisation in the 1980's.

# 3. PAST FORESTRY POLICIES

## 3.1 Hooper Report (1886)

The earliest recorded statement that could be regarded as a forest policy recommendation for Jamaica is contained in Hooper's report on the Forests of Jamaica, following his intensive tour of all the parishes between the 20th October, 1885 and the 8th of January, 1886 (12). In summary, he proposed:

a. to reserve the highlands of the Blue Mountains, arranging amicably with neighbouring proprietors the surrender of backlands that they were willing to part with and obtaining all lands in private hands on the ridge and near it;
b. to demarcate and survey the reserve so formed, protecting it against fire, theft and trespass, employing Maroons for that purpose;
c. to retain as forest reserve all blocks of Crown land on limestone formation that exceed 2,000 acres in extent; to restrict ground provision cultivation in them wherever possible, protecting the reserves against felling valuable timber and generally conserving them;
d. to rigidly enforce the Cinchona leases and protection of the hillsides which should not have more than three acres cleared in any one spot at a time.

There was no forest department at that time, the Crown lands being administered by the Director of Public Works.

## 3.2 Wimbush Report (1935)

In 1935, Wimbush, Chief Conservator, Madras, India, was invited to report on the forestry problems of the country with emphasis on deforestation, the protection of existing forest lands, reforestation and shelterbelts (20). On the subject of the future of forestry, he wrote that in order for any Government to successfully practice forestry, the following essential requirements must exist:

a. properly constituted forest reserves within which all claims have been settled;
b. a comprehensive forest law giving, among other things, power to settle claims, to declare certain acts to be illegal inside reserve forests, to prescribe penalties and to give certain persons power to enforce the law;
c. qualified and experienced staff empowered by law to protect the forest and generally to administer to the best advantage of government and the people, the properly constituted forest estate.

Although there was a gap of almost 50 years between the Hooper and the Wimbush reports, the policy recommendations of both remained essentially the same, to "reserve, demarcate, survey and protect against fire, theft and trespass." During this period, deforestation had escalated to the extent that the Jamaica Agricultural Society in 1935 passed a resolution expressing concern about what was described as widespread deforestation, frequent droughts and floods.

## 3.3 Swabey Report (1945)

It was against this background that the first Conservator of Forests, Christopher Swabey (1937-1945)wrote in 1945 what is considered to be Jamaica's first formal Forest Policy Statement (18).

Four sections comprise this Statement. The first (section A) contains nine Basic Considerations which could be regarded as a list of guiding principles on which the statement was based.

The second (section B) deals with what is described as General Policy and is reproduced below as follows:

- The establishment of adequate areas of forest reserves under public ownership and their management on the basis of conservation and development for multiple use (protective, productive, scenic, recreational and wild life).
- The encouragement of sound forest management on private lands
- The development of the use of native timbers and other forest products to provide the highest possible proportion of the island's requirements.

The third and fourth sections (sections C and D) describe the direct and indirect benefits to be derived, the need for an executing agency and forest legislation and provides details concerning tenure, research, education, extension and management strategies necessary for implementation.

Although no record of the formal approval by government of this policy has been traced, there appears to be little doubt that successive governments and the forestry organization until the 1980's accepted the above mentioned three points as the national forest policy of Jamaica. In bringing this policy to the attention of government, heads of the forestry organisation have at different periods added clauses in support of strategies or trends of the ruling political directorate. For example, during the decade of the '60s, the role of forestry in providing job opportunities in rural areas was incorporated into every statement on forest policy in support of, or as a consequence of, the comparatively large financial resources made available to the forest service for reforestation in the form of grants from bilateral sources or government subventions.

## 3.4 Policy Statements (1984)

Except for some temporary changes to meet current needs, the 1945 policy statement remained relatively intact until 1984 when the UNDP-FAO funded project -FO:DP/JAM/82/006 assisted the

Government in the preparation of two new policy statements, one on forestry and the other on soil conservation as part of its support in strengthening the Department of Forestry and Soil Conservation as it was then known. Two policy statements were considered necessary in view of the uncertainty at that time of the survival of both subjects under the umbrella of a single agency.

The statements posited that forestry and soil conservation were essential disciplines in Jamaica if the remaining natural resource was to be managed and conserved for the national benefit. They represented broad long term statements of government aims and were considered to be sufficiently wide to allow flexibility in coping with diversity and minor programme adjustments that may have become necessary as implementation proceeded.

According to the terminal report of JAM/82/006, the forest policy was approved by a Forest Development Committee (FDC) that was set up to coordinate project activities under the chairmanship of the Director of Technical Services of the Ministry of Agriculture during 1983, and that of soil conservation was approved by the same committee in March, 1984 (7).

## 3.5 NFAP Policy Statements

During the planning process for the production of Jamaica's National Forestry Action Plan (NFAP 1989-90), the development policies of the government relevant to the forestry sector were analysed to help identify developmental objectives for the sub-sector. Based on these objectives, it was expected that a revised policy statement complete with strategies and programmes would be formulated. Except for some minor editing, the NFAP did not make many changes to the 1984 version of the forest policy. Rather it addressed forest policy as it relates to two of its sub-sector areas namely, "forestry in land use" and "fuelwood and energy" and produced the under-mentioned two abbreviated statements:

### *3.5.1 The Forestry in Land Use Policy*

The Statement as recorded in the NFAP final report on the subject reads as follows:

> *"The Government of Jamaica recognizes the importance of forestry in overall land use and supports the management of forest lands for the social and economic benefit of the country. The goal of forestry in land use policy is to integrate forests into an overall land use system to increase productivity, protect soil and water and satisfy local needs for a variety of products within a diversified economy. It must be an integral part of a broad national land use policy to maintain the capability of land to support sustainable development. Agroforestry will be promoted in the upland watersheds where the need for forest cover must be balanced against the need of the hillside farmer for cash and food (7).*
>
> *The Forestry and Soil Conservation Department (FSCD) of the Ministry of Agriculture has the mandate of the government to manage forest lands. The forestry in land use policy will encourage the use of forest lands so as to benefit the people of Jamaica as a whole, encourage the efficient use of natural resources, protect endemic species and natural forests and protect water and soils.*
>
> *The main elements of this policy are:*
>
> a. *Government must gain absolute control of the upper watersheds and forest reserves so that land use practise that cause watershed destruction, soil erosion and uncontrolled forest destruction can be halted.*
> b. *Small itinerant farmers must be granted title to their land so that they will have a long term stake in watershed protection.*
> c. *Agroforestry and improved farming practises that protect watersheds while increasing food and wood production will be encouraged.*

d. *A single government agency responsible for environmental and land use issues will be created that will rationalize government decision making, institutions and programming.*
e. *Local farmers and communities will fully participate with government in land use decision making.*
f. *The awareness of the public for environment and land use issues will be increased by implementing national school and mass media programmes.*
g. *Public and private forest lands will be managed on an integrated and sustained basis so as to protect watersheds, soils and forests while providing a wide range of social and economic benefits.*
h. *Forestry on private lands will be encouraged to create small scale industry and jobs".*

The Fuelwood and Energy Policy proposed in the NFAP states that

> *"The GOJ policy for the future must recognize the need for protection and management of the forest resources of Jamaica, in order to protect the environment, increase productivity for a number of products and provide for a stable and healthy rural economy (3). The development of these resources should take place under a comprehensive land use classification system. The objectives of an energy policy for renewable resources should be based on:*
>
> a. *The reduction of dependency on imported fuel.*
> b. *The promotion of efficient and effective energy utilization while sustaining economic growth.*
> c. *The acceleration of economic development of indigenous energy supplies.*
> d. *Cushioning the impact of continually increasing energy prices for low income groups of the society.*
>
> *To meet these objectives a long range strategy for the development of the renewable energy resources that protects and improves the environment is essential."*

## 3.6 National Report on the Environment

In this report, submitted to the United Nations Conference on Environment and Development (UNCED) held in Brazil in 1992, the GOJ confirmed, on the international stage, its commitment to Jamaica's NFAP approach, and summarized the economic benefits of forestry, its recent performance and the goals and objectives of the sector as follows (6):

- Protection and development of the forest estate to preserve and conserve soil and water resources
- Afforestation of suitable and accessible areas
- Encouragement of afforestation on private lands, support of research on silvicultural and utilization problems
- Development of an integrated institutional framework to plan, allocate, monitor and regulate forest resource use.

The Report went on to state some of the GOJ strategies for achieving goals for the sector by indicating that the preparation of the earlier mentioned NFAP in 1990 was a major step taken by government towards addressing forestry conservation and development in the country. The Plan identified what was described in the report as 11 highest priority projects for early implementation at an estimated cost of US$15.2 million to include the institutional development of what was then the Department of Forestry and Soil Conservation and the Natural Resources Conservation Agency. The development of agroforestry systems in the Blue Mountains, land use control in upper watersheds, forest inventory, monitoring and forest reserve boundary surveys were some of the activities planned. The report on Forestry concluded that "presently the inventory and monitoring components are under way."

## 3.7 National Land Policy

In 1996, the GOJ published a Comprehensive National Land Policy which included a statement on forestry dealing briefly with a number of issues, policy and implementation strategies (9).

According to the Land Policy Statement, the GOJ intended to give priority attention to the conservation and protection of forests, the management of forested watersheds and forest lands, the promotion and regulation of forest industries, forest research, public education and forest training for the purpose of managing the forest estate on a sustainable basis. The statement indicated that the government was in the final stages of preparing a new Forest Act and that the roles of those agencies involved in the achievement of the stated aims of the forest policy would be defined in a revised forest policy that was under preparation. The five policy initiatives given were:

a. Where forest lands are owned by the Commissioner of Lands, these will be leased only on the recommendation and agreement of the NRCA and the Conservator of forests;
b. the government will continue to promote the development of the ecotourism industry and other forest related recreational activities;
c. the mandate of government agencies involved in forests and watershed areas and the coordination of management activities, will be clarified;
d. encouragement will be given for the participation of community based and non-governmental organizations in forest development, protection and conservation, as well as forest related economic activities;
e. Forest related research will be promoted to increase the understanding of the ecosystem of Jamaica.

The following strategies, programmes or projects were indicated in the National Land Policy as implementation instruments:

a. The development and management of forest lands by government and private sector to ensure maximum economic and social benefits to the country will be encouraged. The new forest act provides for the establishment of local forest management committees;
b. develop schemes to plant fast growing trees, especially for use as fuel, and to eliminate the cutting down of large areas of national forests for fuelwood, charcoal, burning, yamsticks, etc;
c. conserve sufficient forest lands to protect and enhance the endemic flora and fauna of the island and dedicate existing acreage to ensure the maintenance of the integrity of forest resources;
d. promotion and regulation of forest related industries;
e. maintain the existence of indigenous stands on steep slopes vulnerable to erosion;
f. control the harvesting of forest products and minimise the impact on the environment, promote a programme of replanting of trees to provide food for wild life habitats;
g. develop and encourage the understanding of the benefits of forest development and management, particularly with regard to the aesthetic and recreational values which it provides and its importance to soil and water conservation;
h. increase and intensify surveillance and monitoring by wardens and rangers, who should be mobile and have communication equipment. The development of trails and their maintenance will be encouraged with limited addition of roads to reduce erosion and avoid exploitation;
i. develop programmes to increase public awareness of the national importance of forests and forested watersheds;
j. review legislation to provide incentives for all forest development including fuelwood forests and penalties to deter destruction and degradation;
k. the forest department has been reorganized and strengthened, new staff are being recruited and employed and a number of others are being trained at universities and in technical institutions;
l. the implementation programme for NFAP has been prepared and is awaiting the signatures of relevant parties;
m. the three year Agroforestry project in North Eastern Jamaica funded by the Netherlands and GOJ through FAO is proceeding. The Rio Grande, Swift and Spanish River Watersheds will benefit from the project. In the Rio Grande, four demonstration and four industrial farms have been developed;
n. the forestry department has identified a number of areas to be reforested. Two new projects will see 5,348 hectares replanted at a cost of J$198 million. Some 200 hectares of this will be done

with small farmers. In addition, a second project will deal with 50 hectares of fuelwood and 250 hectares of agroforests at a cost of J$87 million;

o. the European Union funded an agricultural development project in the Morant Yallahs Watershed area which will include a forestry component, and

p. the IDB and GOJ, with assistance from the Nordic Fund, will undertake the preparation of an investment project for the Hope and Great River Watersheds."

# 4. PRESENT FOREST POLICY (1996)

Hard on the heels of the National Land Policy and in the same year, GOJ approved the latest Forestry Policy Statement in a document entitled "Forestry Land Use Policy." Following a brief introduction, the statement presented a list of 33 goals under the following seven subject areas to which the statement states, "priority attention will be given" (14):

Conservation and Protection of Forests
Management of Forested Watersheds
Management of Forest Lands
Promotion and Regulation of Forest Industries
Forest Research
Public Awareness and Environmental Education
Forest Education and Training

The statement concludes by defining the roles and responsibilities of the Forest Department and ten government agencies said to all be involved in forest land use and suggesting this as indicative of "how GOJ intends to implement the forest land use policy." (See annex 1 for the full statement)

# 5. OTHER RELATED POLICIES AND STATEMENTS

## 5.1 The Natural Resources Conservation (Blue and John Crow Mountains National Park) Declaration Order, 1993

In February 1993 the GOJ issued an Order declaring all the government owned forest lands in the eastern part of the island, comprising the Blue Mountain and John Crow Mountain Forest Reserves, to be a National Park under the portfolio responsibility of the Minister of Housing and the Environment under which NRCA the controlling agency falls. It is understood plans are underway to similarly declare the remaining forest reserve estate of the country.

In this connection, the Forest Department under the portfolio of the Ministry of Agriculture, continued to have responsibility for the same area of forest lands.

## 5.2 National System of Parks and Protected Areas Policy Framework

In 1996, the GOJ approved a policy framework for a National System of Parks and Protected Areas under its Natural Resources Conservation Agency (NRCA). The policy paper described a protected area as an area of land or water that is managed for the protection and maintenance of its ecological systems, biodiversity and or specific natural, cultural or aesthetic resources. With its extraordinary diversity of flora and fauna, land and water habitats and wild and human landscapes, Jamaica, the paper stated, needed a system of protected areas as a key part of its national development strategy. The paper provided a brief discussion of the main issues involved in establishing protected areas and proposed policies for dealing with them.

The paper included the natural forests of the country as an example of a resource area requiring attention based on the following rationale:

**Functions** -- its biodiversity values of native plants and animals, watershed protection, erosion control, scientific research, education, recreation and tourism.
**Issues** -- timber harvest, burning, clearing for cultivation and planting exotic tree species, trade in unusual plants.
**Examples** -- montane forest in the Blue and John Crow Mountains and Dry Limestone Forest in the Hellshire Hills.
**Roles** -- the Forestry Department will have co-management responsibility for forest reserves within environmental protection areas and national resource conservation areas.

## 5.3 Establishment of Forest Industries Development Company (FIDCO)

The Forest Industries Development Company (FIDCO) was established in 1978 with the aim of making the country self sufficient in soft-wood timber. A direct consequence of this policy was the transfer, on a leasehold basis, of all existing pine plantations and forest reserves considered suitable for growing the conifer on a sustained yield basis amounting to 23,870 hectares.

Ten years later, with the advent of Hurricane Gilbert which destroyed about 50 percent of the new plantations, GOJ, in collaboration with the FIDCO, management decided to cease its pine afforestation programme, abandon its planned management of the leased forest estate whilst pursuing a policy of clearfelling and converting to sawn timber all the remaining marketable pine stands.

According to a 1995 FIDCO report, commissioned to assess and recommend its future role, FIDCO could no longer justify its mandate to continue to manage the forest estate entrusted to it. It had lost the US$30 million GOJ investment in the project (exchange rate at the time was US$1=J$1.75) and by its actions from 1990 to the present time of clear felling without replanting the areas felled or damaged by hurricane, had left approximately 10,000 hectares deforested in critical upland watershed areas (10).

During 1997, FIDCO was obliged to return the leased forest reserve lands to the forest department minus approximately 286.9 hectares which it had sublet to its own staff to establish their own private farms. At the end of that year, replanting of the deforested areas had not yet started.

## 5.4 Memorandum of Understanding

Another major policy decision which influenced and adversely affected the forest estate was a Memorandum of Understanding signed by authorised representatives of the Ministry of Agriculture, FIDCO, CIDCO (Coffee Industry Development Company), Lands Department, Forest Department and the National Water Commission in 1984, committing the use of all forest reserve and crown lands in the Blue Mountains considered suitable for coffee production to be so utilised by the Coffee Board. The Memorandum stated that ".... in the event that any disputes shall arise from competing uses of particular parcels of land or any other aspect of this memorandum the agencies agree to refer such disputes to the Honourable Prime Minister whose decision shall be final and binding on the parties."

From reports and environmental assessments, the consequences of this decision have already begun to have a negative impact on the soil, water and forest resources in large sections of the affected watersheds. There is no record to the effect that the Memorandum of Understanding has since been rescinded.

## 5.5 National Water Commission

The State owned National Water Commission (NWC) which owns about 600 ha of forest land in the Hermitage and Hope river strategic catchments for the city of Kingston has not developed a formal published policy for dealing with its estate. Instead the NWC produced a fairly detailed plan which provides some do's and don'ts on the sale and lease of the estate and some implementation guidelines. The NWC has also adopted ad-hoc tree planting on a pilot basis using fruit trees on the premise that such trees are unlikely to be felled for fuelwood and at the same time may confer improvements to water quality and yield on its catchments.

# 6. SOME CURRENT FORESTRY ISSUES AND PROBLEMS

The number of aims proposed in the 1996 Forest Policy statement points to a wide range and large number of problems and issues in the forestry sector as a whole. The list below is by no means exhaustive but represents some of the main biophysical, social, political and institutional areas of concern gleaned from interviews with staff of related agencies and stakeholders.

## 6.1 Deforestation

The problem of environmental degradation in Jamaica, particularly deforestation, has received considerable attention from agriculturists, foresters, politicians, the general public and the media from as far back as the 1930s. Because the problem exists to a large extent on the steep slopes of the mountains and there is a network of roads traversing most of these areas (except perhaps the rugged Cockpit Country), the problem is not a hidden one. It is there for everyone to see.

Successive Governments have attempted to tackle the problem using different strategies without too much success. The most promising was its reforestation projects in the '60s and '70s when attention was focussed mainly on healing the scars by replanting the small, scattered, exposed sites that had been overworked and abandoned by small farmers around the countryside. The work was fuelled by funds provided as a result of the then Governments policy to provide job opportunities in rural areas for its burgeoning socially enlightened labour force.

From a Forest Policy perspective, no attempt was made to assess and analyse the causal factors responsible for the deforestation. Whether land clearing for agriculture, the action of the small farmer or the fuelwood gatherer were to blame, or whether there were other subtle but valid underlying reasons, was never questioned or analysed. The political imperative to provide jobs was government's policy and with this guiding principle the forest department of the day was able to embark on its most successful tree planting era.

Government relied on its own FIDCO to carry on this work on a commercial scale from 1978. During its first ten years, the Company implemented what was considered to be sound management plans. With the destruction of about 50 percent of its plantations in 1988 by hurricane Gilbert, the Company's policy which followed was, and still is, to progressively clear fell all the remaining stands of both hardwood and conifer timber without replanting, earning for itself the dubious distinction of being the largest single cause of deforestation in the country.

In quantitative terms, opinion varies as to the annual rate of deforestation. In a recent study conducted by FAO, a rate of 5.3 percent based on its own monitoring and official reports from the country was announced. Earlier, the NFAP report gave the deforestation rate for the whole country at an estimated 3.5 percent, both figures suggesting that the country had one of the highest rates world-wide (7). Evelyn analysed the data available at the FD in 1996, and whilst suggesting a far less figure concluded that the rate is unknown and that what is required is an island wide bio-physical forest inventory (1). In spite of the hue and cry which followed FAO's announcement which was seen on the internet, the strong media attention it attracted and a conference sponsored by the university's

environmental department to discuss the issue, except for the initiation of two watershed management projects, the only other tangible result so far has been the inclusion of the subject in the many environmentally friendly policy statements issued by government since the news broke.

## 6.2 Soil Erosion and farming practice on steep hillsides

The problem of soil erosion following deforestation is more often than not compounded by the action of the shifting cultivator and small farmer's planting practices. Here again, policy directives to help mitigate the impact has often been unclear and erratic. During the 1970s, the UNDP/FAO Forestry and Watershed Management (JAM/ 76/003) Project established what was considered to be a successful Watershed Management Demonstration centre at Kenilworth in the Parish of Hanover. The project had tested and demonstrated the various soil conservation treatments suitable for Jamaica's hillside conditions but the Government was unsuccessful in getting the farmers to adopt the recommended practices.

The main reason given was that treatment of land by terracing was too expensive. The farmer would not be able to bear the cost involved and production would not be high enough to justify the expenditure. On this basis, the whole process involving also some less expensive treatments was literally scrapped and the site abandoned and later leased to a lucky farmer. The question is, should a policy decision of such importance in resolving a chronic long standing problem be formulated on such a narrow basis, in this case using the farm as the unit of account? Was due consideration given to the external costs and benefits particularly where down stream interests were involved? Using the farm, or for that matter the forest alone, artificially imposed a boundary to the economic analysis and discouraged the use of incentives.

Considering the many direct and external benefits that forests confer, using the watershed as the unit of account would be an advantage as it would in all probability improve the economic analysis, since its boundaries are larger than an individual forest or farm. In other words, this unit of account would enable policy makers to assess in a more comprehensive way, the spatial effects of benefits and costs of different interventions related to soil conservation and other forest activities.

## 6.3 Competing interests for forest reserve lands

Agriculture is perhaps the greatest single source of erosion and at the same time is the largest competitor for forest land, whether by large, small or medium scale farmers. This demand was somewhat facilitated by the Government's earlier policy to encourage leases of the forest estate in support of its stated policy to increase agricultural production both intensively and extensively. This practice was further encouraged by the official classification of land capability in terms of its capacity to grow food. Using this criteria, forestry has often been relegated to land that cannot grow food with little consideration for its economic, social and environmental benefits.

Up to the 1950s, this agricultural policy was not a serious problem. There was little population pressure and rural development was proceeding at a slow pace. The forest reserves created by forward thinking foresters were largely left alone as it was understood then that they provided benefits critical for our survival.

Today the situation has changed dramatically. With improved technology and the use of fertilizers, the agriculturists can now farm steep slopes on land that was considered only suitable for permanent trees. Whenever there was competing interest for land, whether for hotels, industry, housing or mining, the forest was the loser. In competition with agriculture, the situation was even worse since it was the agricultural institution which took the decision whether a piece of land should be clearfelled for agriculture or remain under forest.

With the passage of the new Forest Act in 1996 making it more difficult to sell or lease forest reserve and moving the governments Lands Department away from the Ministry of Agriculture, it is expected the reserve will enjoy a more permanent existence. At the same time, the forest resource remains under the jurisdiction of its main competitor, the Agriculture Ministry.

## 6.4 Dual control of forest reserves

The recent planned declaration of all forest reserves as a national park under the portfolio responsibility of a separate Ministry to that for forestry, is likely to pose management problems, particularly if adequate coordination mechanisms are not in place or if they break down.

Already the problem of dual control has begun to surface with Governments announced National System of Parks and Protected Areas Policy Framework (5.2), in which the role of the FD is defined as Co- Manager in the management of forest reserves. Also, the many agencies having a stake in the sector predicates the need for coordination. This need will grow once other stakeholder agencies begin to expand into areas that could impact negatively on the forest environment.

## 6.5 Land Tenure Inequalities

Land tenure issues relate to both forest reserves and to privately owned forest land. The issue here is that both the squatter and the lease holder, particularly with respect to privately owned forest lands', have tenure that is either insecure or short term. If tenure is insecure, occupants are unlikely to invest in long term or slow maturing activities or to be innovative or risk taking. Even though they may be aware of the benefits of terracing and other soil conservation treatments, tree crops or live fences, they invariably opt for activities that are fast and predictable.

The consequences of this problem are to be found in the critical watersheds of the country where soil erosion and siltation, due to unsustainable farming methods practised by squatters and short term leaseholders, is adversely affecting agricultural production and water resources.

## 6.6 Illegal harvesting of forest trees

A distinguishing feature of the forestry reports of Hooper(1886) Wimbush (1935) and Swabey (1945) has been the need to protect the forest from illegal land clearing and the theft of timber. The small staff that was available to the fledgling forest organisation in the '40s could do little to curtail this activity. Not surprisingly the demand for fuelwood at that time was not a problem as it is today, due to the large quantities that became available from land clearing and the dead stumps left behind after tree felling operations, whether illegal or otherwise.

From reports and discussions with retired foresters, although timber theft was never brought under complete control, it was during the 1960s and 1970s that encroachment and theft was less of a problem. This at a time when the organisation had its largest complement of staff and a correspondingly large number of active projects.

With the establishment of FIDCO and the transfer of 20,000 hectares of public land of which 9,000 ha was pine plantations, by the mid 1980's there developed a period of uncertainty and apathy from which the forest service is now only just beginning to recover. The corresponding loss of key staff, including its cadre of wardens due to governments structural adjustment policy, did not help. In the prevailing climate of institutional weakness and low budgetary support, the incentive to deplete the resource by illegal wood cutters was at a high point.

The 1996 study on FIDCO sums up the theft of timber and encroachment observed in forest reserves at that time as follows:

> "Large scale felling and removal of mature stems was encountered in each of the five Management Units visited. Reports from local persons confirmed that truck loads of stolen timber leave the forest on a regular basis. Illegal small mobile sawmills were in operation at two locations and some band mills in the nearby townships were all well stacked with logs supplied from nearby FIDCO or Forest Department properties." (10)

Whereas the encroachment on forest reserves by some farmers was legally supported by FIDCO through sublease contracts, the scattered, uncontrolled nature of this arrangement has encouraged others to clear- fell and settle in many adjoining locations without any permit whatsoever. Elsewhere in the Johns Vale plantation area, some 200 small farmers felled the 1984 pine plantation and are involved in large scale vegetable production. The areas being farmed are sited in the critical catchment of the Rio Minho River and on the face of it, the short term benefits to the squatter community could be easily outweighed by the likely future high costs to the downstream users and the nation in terms of flooding, high sediment loads, erosion, and the health hazard it poses if the land is formally subdivided and settled as appears to be the trend.

## 6.7 Lack of Detailed Information on the Forest Resource

Without detailed knowledge of the extent, and composition of the forest reserves and reliable estimates of wood availability, the preparation of meaningful management plans will not be possible. It is understood that this activity will be addressed during the next phase of the CIDA funded Trees for Tomorrow project due to start in the first quarter of 1998. The proposed Inventory should have a strong cultural and environmental input to facilitate consideration of alternative forest development strategies.

## 6.8 Weakness of the Forest Institution

A number of factors contributed to the marked decline in the strength and output of the forest department during the 1980's. Principal among these were the loss of key staff members to the newly formed FIDCO, the stringent fiscal measures practised by Government in response to the earlier mentioned structural adjustment programmes and the absence of any clearly defined policy, objectives and management plans.

The Ministry of Agriculture was aware of the problem and in 1982 initiated studies into the reorganization of the Department of Forestry and Soil Conservation, (DFSC) with assistance from a UNDP/FAO Project entitled Institutional Strengthening of DFSC,1983. (4)

Little action, if any, appears to have followed the recommendations which addressed the issues of legislation, policy, increased staff, training, subsidies and incentives for private land owners and forestry and soil conservation development.

Undaunted, the GOJ invited FAO to assist in producing a National Forestry Action Plan, (NFAP 1990) designed to strengthen the sub-sector's contribution to the battered Jamaican economy, based on an improvement of various areas ranging from institutional and legal reform to physical investments in afforestation, forest management, conservation and industries. The plan was estimated to cost US$63.7 million and the early response from likely donor countries after a series of roundtable discussions was considered to be positive. (7)

Due to management incapacity at that time, the Department was unable to profit from the favourable climate that the NFAP had generated. To date, the only tangible response has been the support and assistance provided by the Canadian International Development Agency (CIDA) through its "Trees for Tomorrow project." According to the projects management plan, the project goal is to improve the management and conservation of forests and tree crops for the sustainable benefit of the people of Jamaica. The immediate purpose is to strengthen the institutional capabilities in the Jamaican forest sector to plan and implement sustainable forest management and other soil and water conservation

measures in Jamaica's watersheds and, at the same time, increase awareness of the importance of forests throughout the country.

## 7. FORESTRY POLICY FORMATION PROCESS USED

The review found that among Government Agencies, the policy formation process is invariably initiated using two broad strategies.

Firstly, there are those that emanate from the highest political level in response to a report, public enquiry or from a recommendation of the administration. Such decisions are usually made by Cabinet or Minister of government. In the case of forestry, the Minister of Agriculture would be expected to announce the new policy and take responsibility for its implementation, sometimes without a clear indication of how the new policy would be achieved or funded. Such considerations are usually addressed at a later date.

Some of these policies may be in response to international agreements and global or regional treaties or linked to directives from donor or lending agencies in the form of written or unwritten conditions precedent to disbursement of the grant or loan. In such cases the policy can be described as being externally driven.

Policy decisions falling in this category tend to be taken without due consultation with, and inputs from, concerned agencies and stakeholders, adequate analysis of the options and a full measurement of its economic, social or environmental costs and benefits. Two recent examples affecting the forestry sector are the FIDCO Policy to cease its reforestation of forest reserve lands that it had harvested without organising for an alternative course of action (section 5.3); and the Memorandum of Understanding relating to Coffee (section 5.4) in which the overriding consideration was the prevailing high market prices.

The second strategy involves the use of overseas or local consultants or staff from the concerned agency working either independently or as part of a project, again in response to solving a persisting problem, set of problems or issues. The Forestry Policy of 1996, which is the policy statement under review, falls within this group. The process used in its formation was not documented but the draft indicated that it was prepared by an NRCA Inter Agency Committee assisted by the Jamaica-Canada Trees for Tomorrow Project Consultant.

The need for the formation of a policy statement arose from the recognition of this Committee that the FD needed a revised version if it was to function efficiently, a situation that was confirmed and stressed by the donor agency. The committee was aware of the many initiatives taken in this direction by the FAO supported Institutional Strengthening Project in 1984 that produced two policy statements (section 3.4) and those in the NFAP (section 3.5) and were in fact pressed for action by the donor agency who included this activity in their plans to strengthen the FD.

Guidance was provided by the committee which met periodically to review the draft that was written by the consultant. At that time, it was agreed that the problems and issues to be addressed were well known and adequately documented in the recently produced National Forestry Action Plan and this formed the basis for the new work.

After preparing the draft, working in close collaboration with staff of the Forest Department and with inputs from related agencies, the strategy used was to follow the standard process of obtaining the approval of Cabinet for the document to be Tabled in Parliament as a Green Paper. After this it was circulated to many interest groups, stakeholders, NGOs and related Government agencies for comments.

After analysing the comments and revising the document as necessary, the Inter-Agency Committee approved its transmission back to Parliament through the Minister of Agriculture for approval as a Ministry Paper. The formal record of acceptance as policy was obtained when the Minister moved the resolution and the House gave its assent.

For a complete and objective identification and characterisation of the process used in the preparation of Jamaica's current Forestry Policy, the methodology relied on responses to the under-mentioned five factors. This approach conformed with the standard process taught at Government's Management Institute For National Development (MIND), where this subject has been in its syllabus for a number of years.

## 7.1 Issue Search

The policy document consists essentially of a list of 33 abbreviated aims under seven subject areas. (14) By indicating in the preamble to the statement that "priority attention" will be given to the 33 aims, the impression is given that the forest sector is saddled with many more issues and problems and that 33 of them were singled out for urgent attention. The forest department staff was not aware of the existence of an extended list or organised issue search and in any event no criteria seemed to have been developed in relation to the selection or short listing of the areas.

In the circumstances and without quantitative goals and supporting data, these so-called aims can only be regarded as a "Check List" indicative of the wide range of complex issues faced by the forest sector. An alternative and more flexible approach would have been to identify the current and possibly future problems and issues about which decisions might be thought necessary and the choice of issues that could be handled taking into consideration the strength of the department, the government's limited budget, and the level of information available on the forest resource.

The weakened forestry organisation, budgetary constraints and limited information base are considered to be some of the issues that could have been included in a planned issues agenda. Watershed Management was found to be a grey area in that there was, at the time, and still is, some uncertainty concerning whether it should reside under forestry but the statement was silent on this point. If explicit criteria had been developed during this stage, it is likely that items like the promotion of "alternative energy programmes ...based on solar and wind power and waste recycling" would have been omitted.

## 7.2 Deciding Role Responsibilities

By including a list of the responsibilities of 10 Agencies called mandates, the statement recognised the need for guidance regarding the various roles of the many organizations in the forest sector. To suggest, however, that this is ".... how the Government of Jamaica intends to implement Forest Policy" is naive to say the least. An indication of the constraints involved and how the work of the various agencies could be coordinated and overlap bottlenecks avoided would have been useful.

## 7.3 Problems and Issues Definition

Issue definition is considered to be a critical and essential phase in formulating successful policies (15). It allows for an assessment and explanation of what the problem is and the underlying causative agents which might not be easily discernible. Because most of the problems and issues were well known and listed in several papers, no attempt appears to have been made to establish the likely causes, the problem components and the consequences.

Formulating policy aimed at "providing a sustainable flow of forest products from forest lands to create jobs and revenue" as the only issue of analysis, prevents the exploration of multiple choices that could result in more job opportunities and increased socio-economic benefits without incurring high management costs and environmental problems.

"Encouraging non-governmental and community based organizations to promote forest development, protection and conservation" is a goal to be desired. But it is the farmers and the individuals themselves who threaten the forest and steal the trees and who need to be addressed. They are part of the problem and therefore they should be made part of the solution.

The use of the nation's Constabulary Force as part of a "coordinated mechanism of active relevant agencies" to enforce the requirements of the Forest Law (section 2.0 of the policy statement) might well be necessary, but to give it prominence in the national forest policy statement is unnecessary and unfortunate. Does the police force need to be coerced into law enforcement action? What implementation tools are necessary to achieve the same goal? Is the theft of trees the result of an uncertain or weak organisational structure? When demand for fuel exceeds supply or is not easily available and subsistence needs must be met, police power usually fails to protect the forest.

Another important reason that calls for a careful approach to issue interpretation is the fact that a wrong problem definition can lead to the situation in which the right answers could be given to meet a wrong definition, resulting in an efficient performance but ineffectiveness in improving the forest sector condition. It is always necessary to have a good idea of what the causes are in order to decide which of them will be more strategic upon which to act. Does reforestation depend on the solution of other problems like the control of livestock or boundary maintenance or the control of fires? Before the passage of the new Forest Act 1996, it was assumed that adequate legislation was needed to resolve the problem of illegal felling but after two years theft of forest produce accelerated rather than declined.

Agenda setting as part of the policy process consists of choosing from among an exhaustive list of issues the ones which deserve attention by the forest department and deciding on the type of analysis to be carried out on them. Some criteria for agenda setting include issue context, repercussions or the size of the group affected and the costs or scale of the intervention. Clearly the government is unable to deliver on all the policy goals and the agenda setting would have pointed this out.

## 7.4 Setting Objectives and Priorities

For the purpose of this review, the 33 aims presented in the policy statement were regarded as objectives. These were then reviewed using the following checklist:

- did the statement describe the present situation;
- did it describe where to go or what to quantitatively;
- was there a basis or criteria for determining priorities;
- what were the constraints (financial, technical, etc);
- was there any reference to timing and success indicators.

The result showed that the aims or so called objectives were presented as a tally sheet without a clear indication of the present situation. The document provided a slate of known problems but it lacked a sharp focus and supporting quantitative data. According to the MIND course outline on policy formulation, "if you don't know where you are going, you will end up where you are heading". The long list of so called priorities were developed without criteria, and constraints, if any, were not taken into consideration. There was no indication of the likely period to achieve the aims and objectives and any reference to timing and success indicators was lacking.

## 7.5 Policy Implementation, Monitoring and Evaluation

Policy implementation, monitoring and evaluation are not mentioned in the policy statement. Accordingly, matters relating to this aspect were left to the discretion of the weakened Forest Department.

In the strictest sense, the FD cannot be said to have been implementing the Policy statement. Based on the present management procedures and practices of government agencies, the present FD with limited staff under relatively new management, is now relying on its own corporate plan which it presented in fiscal 1998-1999 with only four specific objectives, a corresponding planned programme and activities for the year and the quantifiable results expected (11).

Whilst the inclusion of implementation and monitoring strategies in workplans or corporate plans has been normal practice, its inclusion also in policy statements is equally important and is considered to be standard practice (13). Specific policies and goals, plans and programmes will prove to be irrelevant if they do not result in a concrete improvement of peoples standard of life and of sustainable use of forest resources and progress should be closely monitored particularly if navigational changes are found to be necessary mid-stream.

It is also necessary that periodically the FD, in regard to the implementation of the policy, should present a report on the sector status, the progress achieved, deviation from goals and its causes. Such a report should also include a formal commitment of the goals to be achieved in the near future or the next implementation period.

# 8. PRESENT INSTITUTIONAL ARRANGEMENTS

## 8.1 Organizational

The FD, under the Ministry of Agriculture, is the main administrative body responsible for the implementation of Forest Policy, whilst the planning, control, use and protection of the nation's natural resources is the responsibility of the NRCA under the Ministry of Housing and the Environment. The FD has 169 professional, technical, administrative, clerical and other support staff on a permanent basis of which 10 are at the professional level. The head is the Conservator of Forests who reports to the Permanent Secretary in the Ministry of Agriculture.

The staff is divided into five sections consisting of Western, Central and Eastern Regions and two branches covering Technical Services and Administration. It is presently engaged in a reorganisation and strengthening process to enable it to play a more positive role in the planning and development of the forestry sector. (See Annex 2 for organization chart of FD). In this connection its short term plans include:

Training
- two persons to pursue the B.Sc.(Forestry) course
- one person to pursue the M.Sc. (Forestry) course
- six persons to pursue Diploma courses(three already received diplomas)
- short term training courses, workshops, study tours computer training etc
- establishment of a GIS unit
- commencement of inventory of forest estate
- development of data base and
- commencement of the preparation of national forest 5 year management plans.

## 8.2 Technical Assistance

In its work programme the department has been receiving continuing support from the CIDA funded "Trees for Tomorrow" project which commences its third phase in February 1998. Government's commitment to the strengthening process is demonstrated by its approval of staff increases following manpower requirement studies, reclassifying staff to enable salaries to be more competitive, increasing the transport fleet of vehicles and providing funds for a modest expansion to the existing office complex.

The long awaited assistance offered by UNDP (Bridging Assistance Programme) has been approved. As a result the Department will shortly be receiving help in revising its 1990 NFAP proposals and preparing project documents for possible implementation assistance from the list of donors who had indicated interest at the time of the round table discussions.

## 8.3 Legal

The Forest Act of 1937 was repealed and replaced recently by the Forest Act of 1996. An outdated set of Forest Rules (1945) which constituted the main regulatory text for the 1937 Act is presently to be replaced by newly drafted Forest Regulations in conformity with the 1996 Act. Because the enactment of the new Act and the approval of the Policy statement occurred in the same year, it was reasonable to expect that this timing would have influenced to a great extent the contents of both.

As far as the new Act is concerned, it prescribed for protection and specific uses of the forest reserves and protected areas, the preparation of management plans for each reserve, the preparation of a National Management and Conservation plan, the establishment of local forest management committees and more rigid enforcement measures. It also dealt with a number of other problems and issues. What was in the policy statement appeared to be a catalogue of most of these in the form of a list.

## 8.4 Operational Guidelines

The acquisition of a new forest law, regulations under the law or a strengthened forest service is not likely to lead to the efficient implementation of forest policy without the availability of a set of operational guidelines. These are not available and have not been commissioned.

# 9. JAMAICA'S FORESTRY POTENTIAL

The country has a total area of 1.14 million hectares on which there is exceptional diversity of topography. geology, rainfall and vegetation. Of this amount, forest land is estimated to cover 267,000 hectares subdivided as follows:

| | *Public* | *Private* | *Total (000ha)* |
|---|---|---|---|
| Natural Forest | 61 | 16 | 77 |
| Ruinate Forest | 34 | 135 | 169 |
| Plantations | 19 | 2 | 21 |
| Total | 114 | 153 | 267 |

Source: NFAP 1990.

The area of productive natural forest is estimated at 77,000 hectares of which 77 percent is state owned. Most of it is located in the inaccessible and rocky cockpit country. Traditionally good quality species have become scarce on both private and public lands and the less durable is also difficult to find. Until a more precise indication of the quantity and alternative use of the resource is established, caution should be exercised in any plans to exploit this resource.

The demand for immature smaller sizes in the form of fuelwood, fence posts and yam sticks is such that the natural recovery of the forest can no longer be taken for granted, particularly if alternative sources from fast growing plantations are not planned. According to a World Bank study in 1998, annual charcoal consumption was estimated at 60,000 tons while approximately 300,000 $m^3$ of wood are consumed directly as fuelwood. In spite of the lack of accurate figures, it is accepted that wood for fuel continues to consume the largest amount of forest products. This fact alone should have been enough to justify studies that might qualify fuelwood for priority status in dealing with the many problems in the sector.

In its present state and considering the wide range of demands, whether the remaining forests will be able to support a policy to produce reasonable quantities of timber on a sustainable basis has been the subject of much discussion among NGOs and environmentalists. To realise the full potential of forestry for this or any other role will require long term plans and these should await the results of the inventory.

Whatever the finding, future forestry potential may well lie in the range of services, which although seldom accounted for, are of substantial benefit to the economy (7). Some of these include soil conservation, water quality and yield, recreation and biodiversity. Unfortunately, the value of these roles are only appreciated after periods of drought, flooding and heavy losses of life and property. If forest management in the Jamaican context is seen as serving these goals, as well as economic and social well-being for local or down stream inhabitants, economic analysis may prove to be positive.

The traditional approach of using the forest as the unit of account prevailed in the past because the available capital from the forest in the form of mature saleable trees made the transaction profitable. Because of the vastness of those forests, it was possible to adjust the annual cut to match the annual rate of growth of trees which theoretically allowed the forest to produce capital indefinitely.

Whilst this still holds good for many countries, the reality is that Jamaica has lost almost all its original forest capital and what is left, from all accounts, is not considered enough to service the remaining natural resources that depend on the forest for survival. By extending the boundary of the forest to include the relevant watershed, external costs and benefits can therefore be incorporated to improve economic analysis of the forest project.

In the eastern parishes where the absence of adequate forest is acute, the Government, with assistance from the European Union and the Inter-American Bank are implementing two large scale watershed management projects each with strong forestry components confirming forestry's potential in this field of activity.

The same is valid with respect to coastal ecosystems. One of the important issues is the declining fish capture from the inshore fishing zone. Almost all effluent industry, agriculture and domestic waste is directly or indirectly discharged in the shore marine environment leading to severe stress or destruction to coastal wetlands and mangroves, which are themselves important breeding grounds of fish and other marine animals. Action to realise this potential should rest with the forest department who should be expected to have this expertise if the boundary of the accounting unit is extended instead of being fractionalized.

Much of Jamaica's scenic beauty depends on its vegetative cover. Opportunities for recreational and ecotourism offer considerable potential, since they remain virtually untapped. Like the country's rich biodiversity, both will diminish as environmental deterioration proceeds.

The fact that 135,000 hectares of ruinate land is lying comparatively idle in private ownership predicates the need to study and develop this potential.

## 10. CONCLUSIONS

It is clear from the foregoing that Forestry in Jamaica is at a cross roads. With fluctuating fortunes in its formative years, the Department experienced stringent fiscal measures and uncertain functions during the period of the 1980's. Towards the end of that decade, the response by FAO to the government's request for assistance to help prepare its NFAP was timely if the slide being experienced by the FD was to be checked. The renewed vigour gained was supported by the attention paid to the sector following the UNCED meeting in Brazil in 1992. Technical assistance and continuing support since then has come from CIDA under a joint GOJ/CIDA Trees For Tomorrow forestry project.

Assent was given to Jamaica's Forest Policy by Parliament in 1996. Because of its content and lack of information in support of its proposed aims, it can only be regarded as a catalogue of the main problems and issues in the Forestry Sector.

The policy makers missed the opportunity through the Green Paper process to present the Parliamentarians and the public with the Governments vision for the role of forestry in this new environmentally conscious era, the national goals to achieve that vision and the specific objectives and policy initiatives that would be undertaken. Forestry is as much a people's problem, as well as a problem for the state, and the public should be kept informed of the underlying principles leading to any policy decision affecting the environment and the rationale for making this or that policy statement.

Once identified, an attempt should have been made to determine the underlying causes for further analysis. The foregoing suggests that a number of other more important issues and needs would have surfaced and by using criteria developed for the purpose, a pattern would have unfolded which could help to influence the Government and the public in the determination of the priorities for the best policy. Even with outside help, the government will never be able to achieve all that it says in the statement that it will do. It just cannot afford everything, hence the need for priorities.

Pertaining to the resource information base, a main constraint to planning forest development has been an acute lack of knowledge regarding the extent of the forest estate and its condition. Only very general estimates are available on the country's forest resource area, location, volume, growth rates, site conditions and cultural and physical resources. Policies and decisions regarding the forest resources of Jamaica cannot afford to rest on assumptions, particularly if increasing demand and high rates of deterioration exist. It is, therefore, essential that a rigorous inventory be made as soon as possible. It is noted that this activity is scheduled for early implementation in spite of its casual treatment in the policy statement.

In the light of the earlier determination that implementation strategy forms part of the policy statement, its omission from this statement is noted. Implementation should be planned with as much care as the technical and physical aspects of the document. One should not assume that the policy will be operated, revised as necessary and used effectively.

It did not appear that the policy was being used, and in its present form, it was unlikely to be able to be used successfully to justify or defend any action whether for or against the forest sector.

## 11. RECOMMENDATIONS

Policy studies should be undertaken and the policy re-written using the process and in the format recommended and used by Government's own MIND and NRCA taking into consideration the findings of this review.

A similar if modified approach was used by the NRCA in its draft Beach Policy for Jamaica booklet now being circulated as a Green Paper (September 1997) for public information and comment and is an example of this approach (16).

The timing for this work should coincide with the completion of the forest inventory or within the next 18 months, whichever is earlier.

In drafting the Policy, advantage should be taken of the shift in society's values which, in recent years, has placed emphasis on non-consumptive uses of the forest and the negative impact of some forest practices on the environment.

On the one hand, this would allow for research and analysis of the potential linkage between the forestry sector and tourism which is the fastest and the most profitable growth sector in the economy.

On the other, it would provide for the development of a sound policy and implementation strategy to deal with the national problem of water quality and yield from the forestry perspective.

Early action should be taken to plan and implement a programme aimed at assisting in the development of privately owned forests.

This goal has been repeated in every policy statement since 1945, recognising the potential of that sector but without a proper analysis of the issues involved and an implementation strategy and plan.

# 12. PERSONS INTERVIEWED

MINISTRY OF AGRICULTURE
Hopeton Fraser, Chief Technical Officer
Marie Strachan, Director of Planning
Paulette Lyon, Director of Project Management

FORESTRY DEPARTMENT
Marilyn Headley, Conservator of Forests
Owen Evelyn, Director, Forestry Resource Management
Patrick Virgo, Manager, Eastern Division

MANAGEMENT INSTITUTE FOR NATIONAL DEVELOPMENT
Claire Spence, Dean of Studies

MINISTRY OF FINANCE
Carol Jones, Deputy Financial Secretary
Shirley Tavares, Deputy Financial Secretary, Corporate Services

MINISTRY OF HOUSING AND ENVIRONMENT
Leonie Barnaby, Director, Environmental Conservation Division

NATURAL RESOURCES CONSERVATION AUTHORITY
Learie Miller, Deputy CEO
Anthony McKenzie, Senior Director, Coastal Zone Management
Lemore Jones, Senior Director, Watershed Management
Julette Nelson, Director of Project Management and Policy

PLANNING INSTITUTE OF JAMAICA
Hopeton Peterson, Environmental Desk Officer
Hugh Taylor, Watershed Management Policy Officer
Prof. Keswan Raji, Environmental Policy Analyst/ Economist

NATIONAL WATER COMMISSION
Michael Forbes, Property Manager
Gillian Mitchell, Environmental Officer

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# 14. ABBREVIATIONS

| | |
|---|---|
| CIDA | Canadian International Development Agency |
| CIDCO | Coffee Industry Development Company |
| GOJ | Government of Jamaica |
| FAO | Food and Agriculture Organization |
| FD | Forest Department |
| FSCD | Forest and Soil Conservation Department |
| NRCA | Natural Resources Conservation Authority |
| NWC | National Water Commission |
| MIND | Management Institute for National Development |
| PIOJ | Planning Institute of Jamaica |

# FOREST POLICY OF MARTINIQUE

by Y. Renard

## 1. INTRODUCTION

## The Forestry sector

### *Institutions*

To facilitate an understanding of the forestry sector, it is necessary to begin this report with a brief presentation of the complex institutional landscape which exists in Martinique.

The main institutional actors involved in forestry issues in the public sector are:

- the Office National des Forêts (ONF), the French national forest agency, which is constituted as a public company. It was created in 1964;
- the Conseil Régional: the responsibility of this elected assembly and its executive are to provide the overall planning framework for the island's economic development;
- the Conseil Général: this elected assembly and its executive manage the properties and assume the responsibilities of the Département, which is responsible primarily for social infrastructure and services;
- the municipalities: headed by elected mayors and municipal councils, the municipalities (34 in all in Martinique) are responsible for local level social services and for the formulation and implementation of land use plans.

Another actor is the Conservatoire National de l'Espace Littoral et des Rivages Lacustres, a governmental agency responsible for coastal management. The Office National des Forêts is the agent of the Conservatoire for Martinique and is responsible, on its behalf, for research, and for the identification of sites for acquisition. It has also been vested with the responsibility for the management of the Grand Macabou and Pointe Rouge sites, which are owned by the Conservatoire.

Forestry research is carried out by the Office National des Forêts, through its Section Technique Inter-Régionale (STIR), a research and technical assistance institution based in French Guiana and serving the three French Départements of Guadeloupe, Guyane and Martinique. Between 1992 and 1997, the Office National des Forêts had established a research unit, with support from the Conseil Régional, but funding constraints have not allowed it to continue its work. The main directions of research which are relevant to forest management in Martinique are:

- the management of mahogany plantations: the STIR is now embarking on a study of the genetic composition of the mahogany population in Martinique, to determine whether the low diversity of the genetic stock introduced could have affected the growth and quality of the plantations;
- experimentation with the silviculture of local species, with the establishment of plots where rates and patterns of growth and regeneration are studied;
- a study of the genetic diversity and dispersion of the white cedar, *Tabebuia pallida*, and the selection and testing of superior genetic material for later dissemination in the region.

The university of the French West Indies (Université des Antilles et de la Guyane) is also an important actor, providing expertise to a number of forest management activities and institutions, and conducting important research in a number of areas. It was directly involved in the advocacy campaigns which resulted in policy shifts in the 1970s and 1980s.

The Société des Galeries de Géologie et de Botanique is a non-governmental organization supported by the municipality of Fort de France and dedicated to research and public awareness. It maintains exhibits and collections, conducts educational activities, supports and undertakes research programmes, and provides scientific and technical services to management interventions. It was created in 1982. Since its inception, it has been involved in matters related to the forest, as the owner and manager of the island's main herbarium, as a campaigner on behalf of the forest, and as the publisher of an important document calling for a change in forest policy (Galerie de Botanique 1987).

The Association pour la Sauvegarde du Patrimoine Martiniquais (ASSAUPAMAR) is a non-governmental organization advocating on behalf of the environment. It conducts public awareness and mobilization campaigns, and frequently uses legal action to denounce or oppose public policies and interventions of governmental agencies.

Other environmental organizations include the Comité de résistance à la destruction de l'environnement martiniquais (CORDEM), MODEMAS and a number of local groups involved in environmental action in municipalities.

There have been recent proposals (Daniel 1997) for the establishment of a Conservatoire Botanique National, which would conduct research, public awareness, networking and plant conservation activities. A feasibility study for the creation of such an institution is currently being carried out by the Société des Galeries de Géologie et de Botanique of Fort de France.

## The resource

Forested areas in Martinique cover approximately 46,500 hectares, or 43 percent of the island's territory, with approximately 31,000 hectares in private ownership and 14,592 hectares in public ownership, distributed as follows:

- forêt domaniale du littoral (coastal state forest), 2045 hectares;
- forêt départementale (areas recently acquired by the Conseil Général, owned by the Département, and managed by the Office National des Forêts), 985 hectares;
- forêt départementalo-domaniale (state forest), 9,722 hectares;
- mangroves, 1,840 hectares, which are owned by the state and managed by the Office National des Forêts;
- areas acquired by the Conservatoire de l'Espace Littoral et des Rivages Lacustres, 677 hectares.

There are four main natural forest formations:

- mangroves, located principally in the bay of Fort de France;
- xerophytic forests, in lower and drier areas. Approximately 1,000 hectares of dry forests are under public ownership;
- rainforests, located on the slopes of the Pitons du Carbet, Morne Jacob and the Montagne Pelée;
- montane forests, located on the summits of the Pitons du Carbet and the Montagne Pelée, at elevations above 1,000m.

Most of the forested areas are located in the north of the island, with small areas of xerophytic forests and coastal formations in the south.

## Resource use and management

The primary function of Martinique's forest is protection. There are approximately 1,700 species of flowering plants occurring naturally in Martinique, as well as more than 200 species of ferns. Thirteen species of ligneous plants are endemic to the island. Forested areas provide the habitat for a number of rare or endemic animal species, including the Martinique Oriole, *Icterus bonana,* the White-breasted Thrasher, *Ramphocinclus brachyurus*, the iguana, *Iguana delicatissima*, and a snake, *Bothrops lanceolatus*.

Martinique's forest is also critical for water supply, with virtually all catchments located within the boundaries of the public forest.

Traditional forms of timber harvesting and other traditional uses of forest resources have disappeared, except for occasional collections of medicinal plants, and for small amounts of charcoal production on private lands. The only plant which is harvested to a significant extent is the bamboo, *Bambusa vulgaris*, which is used for handicraft production.

Timber production is concentrated on public lands. The first plantation of mahogany (*Swietenia macrophylla*) was established in 1905, on an area of three hectares. Between 1924 and 1940, 115 hectares were planted, while 175 hectares were established between 1941 and 1945. In the 1950s and 1960s, the Taungya system was used extensively for the implantation of mahogany plantations. During the period between 1977 and 1990, 310 hectares of mahogany plantations were established. At present, there are 1,479 hectares dedicated to mahogany plantations, with 1,198 in actual production. There are 33.8 km of forest roads.

Harvesting of mahogany plantations began in 1977. These mahogany plantations currently produce approximately 4,500$m^3$ per year, and it is estimated that this figure could be increased to 7,000$m^3$ per year if smaller branches were properly exploited and yields consequently increased. There are approximately ten sawyers (three with small mills, the others operating Alaskan chainsaws) who purchase trees for less than FF300.00 (approx. US$52.00) per cubic metre. This amount is far lower than the production costs incurred by the forest service. Forest production activities, including the establishment and maintenance of plantations, are subsidized by France and the European Union.

Almost all lumber used in Martinique is imported. In 1991, wood imports (excluding furniture and prefabricated houses) amounted to 81 million French francs (approx. US$15 million). It is estimated that local mahogany production covers one third of the needs of local joiners and cabinet makers. There are approximately 230 joiners and cabinet-makers in Martinique. It is estimated that the overall deficit of the timber sector amounts to FF 300 million (US$55 million) per year.

Forest areas are important assets in the development of the tourism sector, but it is impossible to quantify their contribution. There are 170 km of established and managed trails, which are used extensively by locals and visitors.

Hunting is an important recreational activity in Martinique, with the sale of 1,200 licenses every year. The Office National des Forêts is responsible for issuing these licenses, and generates a small amount of revenue from this activity.

The first modern institutional and legal instruments for the management of the public forest were put in place in 1903 with the recruitment of forestry personnel placed under the authority of the Ponts et Chaussées (the agency responsible for works and transports), and then in 1922 with the introduction of a forestry law (Code Forestier).

The institutional and legal arrangements for forest management must be seen in the context of the political status of Martinique, which was a French colony until the end of the second world war (Law of 19 March 1946), at which time it became a Département of France. These arrangements are complex, and find their basis on the following instruments:

- a Decree of 30 December 1947 extended French forestry legislation to its overseas départements, including Martinique;
- a Decree of 1948 stipulated that all properties of the former colony became properties of the Département, but placed the forests under the management responsibility of the Administration des Eaux et Forêts;
- following the creation of the Office National des Forêts (ONF) in 1964, a regional agency of the ONF for Martinique was established in 1965.

There is also an arrangement whereby the forestry responsibilities of the French Ministry of Agriculture in Martinique are vested in the Office National des Forêts. This was first done informally, but the arrangement was formalized in 1986 by a Ministerial Decree. The Decree stipulated that specific

conventions had to be signed, in each French overseas Département, to specify the roles and conditions of the Office National des Forêts in executing the mission of the local Direction de l'Agriculture et de la Forêt (the local directorate of the French Ministry of Agriculture). These conventions have not yet been signed. The functions involved are:

- the control of deforestation on private lands. This is in accordance with the provisions of the forestry law (Code Forestier) which stipulates that land owners must seek the state's authorization before cutting trees and deforesting their property;
- the development of economic activities linked to the forestry sector;
- the involvement in the preparation of land use plans (notably the Plans d'Occupation des Sols);
- the identification and assessment of private lands to be considered for acquisition by the Conseil Général or by the Conservatoire de l'Espace Littoral et des Rivages Lacustres.

A number of protected areas have been established or proposed:

- under the provisions of the 1994-2003 management plan for the forêt départemento-domaniale (see below), three areas have been proposed as biological reserve: 1,540 hectares in the Montagne Pelée, between 250 m in elevation to the summit (1,397 m), 1,326 hectares in the Pitons du Carbet, from 500 to 1,200 m in elevation, and 1,510 hectares at Morne Jacob, from 270 m to 880 m in elevation;
- a Parc Naturel Régional was created by a local assembly, the Conseil Régional de la Martinique, by resolution dated 10 September 1976, with all parties having agreed to the Park's Charter on 24 August 1976, in accordance with French legislation on protected areas. A new charter for the Parc Naturel Régional was approved in 1996;
- biological reserves have also been established in coastal areas at Pointe Rouge and Grand Macabou;
- proposals have been formulated for the establishment of a Biosphere Reserve in the north of Martinique. Proponents of the Biosphere Reserve have stressed the regional dimension of this initiative, which is supported by most resource management institutions, including the Parc Naturel Régional and the Office National des Forêts.

***Socio-economic profile of Martinique***

| | |
|---|---|
| Population | 392,000 |
| Labour force | 164,000 |
| Average annual rate of growth | 4.3% |
| Reproductive rate | 14.5 per 1,000 |
| Density | 353.2 per sq. km |
| Adult literacy | 80% |
| Primary schools | 276 |
| Secondary schools | 76 |
| University | 1 |
| Gross Domestic Product | US$4.4 billion |
| Annual rate of growth of GDP | 7% |
| Per capita GDP | US$11,675 |
| Exports | FF 1,086 million |
| Principal exports | bananas, refined petroleum products, rum, pineapples |
| Imports | FF 10,072 million |
| Agricultural sector | 8% of labour force, 7% of GDP |
| Tourism sector | 5,000 employees, 931,786 total visitor arrivals |
| Cruise ship arrivals | 408,425 |

Source: miscellaneous, all data from year 1996

## 2. POLICY CONTEXT

Formal forest policies cannot be understood if they are not placed within the broader context in which they operate. Formal policies are determined by a broad range of factors, including popular

perceptions, the culture and structures of decision making, the distribution of power, and other sets of cultural, social and political rules and norms which guide the collective behaviour of people.

In Martinique, the following elements of context must be noted:

- centralized decision-making: because of the political status of Martinique as a French département, there is a high level of centralization in decision-making, which manifests itself in three forms:
  1. overall policy direction is provided by the government in Paris, where all important decisions are made;
  2. in the implementation of these policies, and in cases where arbitration among local actors is needed, the Préfet, who is the local representative of the French government, has the most significant power;
  3. there is no strong tradition of, or established structure for, consultation in policy-making. Decision-making is generally technocratic, and what is typically described by governmental agencies as consultation and participation is the mere involvement of other public sector institutions in the policy-making process;
- strength of the Office National des Forêts: the forestry administration, because of its original status and culture as a paramilitary organization, is a major actor in policy making. When dealing with forestry matters, it is in the position to formulate policies and decisions;
- strength of local elected assemblies: at the same time, the context of policy and decision making is largely influenced by the fact that local elected assemblies in Martinique are powerful, and that they have strong views on forestry issues. For this reason, forest policy making in Martinique is far more political than it is in Guadeloupe;
- tradition of timber production: the process of establishing mahogany plantations in Martinique began almost one century ago, and has been relatively successful. As a result, there is a widespread view that forests should retain a function of production, and there are established practices and skills which make Martinique's small timber industry relatively significant;
- strength of the NGO movement: there are a small number of active non-governmental organizations in Martinique, which address environmental issues through militant action. Particularly noteworthy is their use of legal instruments to force state and local agencies to comply with existing legislation and regulations, and to modify decisions which they consider detrimental to the resource and the people;
- the value of scientific opinion: in Martinique, as indeed in Guadeloupe, the views and opinions of scientists are taken very seriously, and are very influential in the process of policy making. In many respects, the success of advocacy work and the impact of public awareness campaigns depend more on the perceived legitimacy of the spokespersons than on the number or representativity of people expressing the views;
- because of a number of the factors described above, there exists an interesting situation whereby the actual processes of policy formulation are very different from what the law intends them to be. Forest policy making, in the French system, is largely a technocratic process, subject to the review of the political directorate. In Martinique, forest policy making is, in many respects, the result of a multi-stakeholder process involving central government agencies, local assemblies, NGOs, researchers and the general public. It is, de facto, a participatory process, taking place in contradiction with the formal rules of policy making, through conflicts, negotiations and advocacy.

## 3. CURRENT FORESTRY POLICIES

There is no overall policy statement to guide forest management in Martinique.

The most encompassing policy and planning framework is the Schéma d'Aménagement Régional (SAR), a development plan for Martinique which was formally adopted on 24 January 1995. The SAR identifies two objectives for the protection and management of forests:

- the protection or restoration of all forested areas which are either natural or have not been significantly degraded, with the full protection of primary forests in the north and plantations to combat erosion in the south;
- timber production, with a target of 2,000 hectares under plantation and silviculture.

On the basis of the SAR, the Conseil Régional developed and financed forest management activities, including the research unit mentioned above.

The most specific and significant statements of forest policy are contained in the individual forest management plans. According to French law, management plans must be prepared for and applied to all forests placed under the management authority of the Office National des Forêts. In Martinique, management plans have been prepared, or are being prepared, for each forest unit.

The first management plan for the forêt départemento-domaniale was prepared for the Pitons du Carbet and the Montagne Pelée, for the period between 1977 and 1986. The management plan was formulated by personnel from the Office National des Forêts.

First drafts of the management plan were met with fierce opposition from local politicians, experts and non-governmental organizations, resulting in a substantial reduction in the plantation and production targets. A significant factor in the formulation of the management plan and the policies that it contains was the completion, in 1976, of a doctorate dissertation (Portecop 1979) which provided a comprehensive set of data on the original and residual forests of Martinique, and illustrated the need for conserving the few remaining areas of natural vegetation. There were several other studies carried out at the same time, creating a convergence of factors in favour of increased conservation. Media houses, therefore, joined in the campaign and expressed their opposition to the management plan, as proposed by the Office National des Forêts.

The management plan which was eventually adopted identified four main functions for the forest resources:

- protection;
- timber production;
- biological conservation;
- provision of social services (recreation, employment, hunting).

The specific objectives of the management plan were defined as follows:

- the ecological conservation of the largest portion of the state forest, for the purpose of protection and research;
- the progressive enrichment of secondary forests, with the introduction of timber species (primarily mahogany) and the construction of roads to permit harvesting;
- the conduct of experiments in order to guide the silviculture of local species;
- the improvement of public facilities and services, primarily for education and information, in collaboration with the Parc Naturel Régional;
- the enhancement of the resources available for recreational hunting and fishing, through regulations, plantation of trees as sources of food for birds, and, possibly, the raising of selected species;
- the integration of issues of employment through the establishment of a collective agreement with representatives of forest workers and the sensitization of workers who were not yet organized or unionized.

The management plan identified three zones:

1. an area of protection, covering 4,800 hectares;
2. an area of forest to be transformed into plantations, covering 1,750 hectares;
3. an area covering 2,950 hectares, to be left untouched, save for small areas reserved for experiments with the silviculture of local species.

In this management plan, the Office National des Forêts stated the objective of partially meeting the local demand for timber.

Towards the end of the management period, the Office National des Forêts, working in conjunction with the Université des Antilles et de la Guyane and independent researchers, conducted a number of

studies which pointed to the need to reduce further the targets of plantation and to increase the number of biological reserves and areas under protection.

A new management plan was, therefore, formulated for the period from 1993 to 2002 (Office National des Forêts, n.d.a). Although the document does not contain a statement of objectives, the objectives of the management plan can be reconstituted as follows:

- conserve biological diversity and landscapes;
- protect soils and water catchments;
- maintain timber production;
- provide opportunities for recreation.

This management plan zoned the forest's 9,514 hectares as follows:

- 4,376 for habitat and biological conservation, under reserve status, with three areas established as nature reserves for total protection: 1,540 hectares in the Montagne Pelée between 250 m elevation to summit (1,397 m), 1,326 hectares in the Pitons du Carbet, from 500 m to 1,200 m elevation, and 1,510 hectares at Morne Jacob, from 270 m to 880 m elevation;
- 3,260 hectares for soil and landscape conservation;
- 1,479 hectares for production (mahogany plantations);
- 399 hectares for reforestation and improvements in degraded areas.

In a fashion very similar to what had occurred in the mid-1970s at the time of the formulation of the first management plan, the preparation of this new plan was marked by a period of intense conflict between the Office National des Forêts on the one hand and a number of local actors on the other hand. The main opponents to the policies and practices of the Office National des Forêts were ASSAUPAMAR (which wrote a formal letter of complaint to the President of the French Republic in 1985), the Société des Galeries de Géologie et de Botanique (Galerie de Botanique 1987), the Mayor of Fort de France (who wrote to the French Minister for the Environment in 1989), as well as a number of local personalities. On 17 November 1988, the powerful Conseil Municipal of Fort de France, chaired by Aimé Césaire, passed a resolution protesting the damages caused by road construction in the forest, the expansion of marijuana plantations, and the inefficiency of the Office National des Forêts. These protests and the resulting negotiations caused much delay in the preparation, and eventual adoption, of the management plan.

Over the past two decades, the Conseil Général (Département de la Martinique) has had a policy of acquiring private forests. Between 1976 and 1996, the Département has acquired over 1,000 hectares, all located around the forest of the Pitons du Carbet. The Conseil Général has since covered the costs of managing the lands that it has acquired.

Small portions of coastal forest have also been acquired from private landowners by the Conservatoire de l'espace littoral et des rivages lacustres, a French public agency. The Conservatoire has acquired three main areas, the most important being the Grand Macabou area, managed by the Office National des Forêts. In 1987, the Conservatoire and the Conseil Général signed an agreement for the management of the coastal areas acquired by the Conservatoire. The Conseil Général has, however, decided not to renew this agreement, as it is now unable to meet the financial commitments involved.

With respect to the conservation of species and ecosystems, another important programme is the ongoing inventory of areas of special importance (Inventaire des Zones d'Intérêt Ecologique, Floristique et Faunistique - ZNIEFF) which is carried out by the Société des Galeries de Géologie et de Botanique on behalf of the Ministry of the Environment. (Société des Galeries de Géologie et de Botanique 1997). The programme began in 1989.

Important policy directions are also provided by the Plans d'Occupation des Sols, which are land use and development plans formulated for each municipality. The POS is the main instrument to guide the use of forested areas on private lands.

Policy directions are also provided by a number of initiatives aimed at promoting the integrated development of the north of the island, through resource conservation, rural development and heritage tourism.

Another policy instrument which is being developed is the Schéma Directeur d'Aménagement et de Gestion de l'Eau (SDAGE). It is a management plan for water resources, which is required by French law, and which is being prepared under the leadership of the Direction Régionale pour l'Environnement (DIREN), the local directorate of the French Ministry of the Environment. The preparation of the SDAGE for Martinique has recently begun, with preliminary studies and with the consultation of the various interest groups.

The current status of formal policy making with respect to forest resources can, therefore, be summarized as follows:

| *Policy requirement* | *Current status* |
|---|---|
| Provision of overall vision of and goals for forest management, within broader development context | No overall policy statement. Development framework provided by the *Schéma d'Aménagement Régional*. Sectoral policies not harmonized. |
| Institutional coordination and collaboration | Mechanism provided, to some extent, by the *Schéma d'Aménagement Régional*. |
| Sectoral policy: water management | Policy under formulation (SDAGE), the extent to which it will address the relationship between forestry and water management is unclear. |
| Sectoral policy: biodiversity management | Recommendations for protection formulated under the auspices of the *Société des Galeries de Géologie et de Botanique*, notably within the ZNIEFF programme. Policy directions provided by the *Parc Naturel Régional* |
| Sectoral policy: tourism and recreation | Policy directions provided by the *Parc Naturel Régional*. |
| Sectoral policy: timber production | Policy direction provided by the forest management plan, includes objectives, plans, standards and management activities. For private lands, the charter of the *Parc Naturel Régional* also provides policy direction, with an emphasis on collaboration between land owners and public sector institutions for the management of private forests. |
| Information acquisition and dissemination | Research policies and programmes determined by individual agencies. No overall framework. |
| Public participation and decentralization | No policy statement. |
| International cooperation | Policy directions provided by the agreements signed by the Government of France, notably the Cartagena Convention, the Convention on Biodiversity and CITES. |

# 4. EMERGING AND CURRENT ISSUES AND PROBLEMS

## Poor information base

The issue of inadequate information upon which to base management and policy decisions is raised by a number of actors, and notably by the Office National des Forêts, which sees this as one of the major constraints affecting the preparation of forest management plans and the formulation of decisions affecting the fate of the forest resource.

## The absence of a clear and fully enunciated forest policy

A number of the actors, including the Office National des Forêts and the leading non-governmental environmental organizations, are concerned about the absence of a policy that would guide the management and use of forest resources in the country. The NGOs and the local elected assemblies also feel that the Office National des Forêts has too much authority and is able to define its management policies, objectives and practices outside of the main policy frameworks.

## The lack of effective management of private forests

This is seen as a major issue by every stakeholder, and various causes are attributed to this problem. The Direction de l'Agriculture et de la Forêt of the French Ministry of Agriculture has vested the management responsibility for private forests to the Office National des Forêts, but the ONF notes that the resources at its disposal to effect this management are insufficient. The Office National des Forêts also feels that the potential of timber production on private lands is not being realised, largely because of rapid urbanization, which encourages land owners to speculate on land.

## Financial viability and future of mahogany plantations

Important issues revolve around the status and future of mahogany plantations. The policy of all main governmental actors is to maintain and slowly increase areas in plantation. The high costs of production are recognized, but the Office National des Forêts feels that the extremely high rates of wastage (around 70 percent) could be reduced significantly, and that the price of lumber could be increased. In such a situation, says the Office National des Forêts, mahogany production would still be subsidized, but this would not be different from other sectors of the local economy, particularly agriculture, which are also heavily subsidized by the French state and by the European Union.

## Weakness of planning and resource management instruments

This issue is identified by all actors. In its preamble to the Schéma d'Aménagement Régional, the Conseil Régional identifies the limited impact of existing management instruments as a major issue. In its new charter (Syndicat Mixte des Collectivités du Parc Naturel Régional, 1996), the Parc Naturel Régional also expresses concern over this issue, noting, for example, that more than 900 hectares which should have been zoned as ND (no construction) under the various Plans d'Occupation des Sols had actually been declassified when the POSs were first reviewed. In one of its documents (Office National des Forêts 1993), the Office National des Forêts also notes the inability of land use and planning mechanisms to reverse the trends of deforestation, squatterization and soil erosion.

## Deforestation and illegal clearing

This issue is identified by all actors, but there are indications that the problem is far less acute than it was in the 1970s and early 1980s, when there were frequent incidents of deforestation on public lands, for the purpose of farming. Many of these cases were associated with the illegal cultivation of marijuana, an activity which appears to have decreased substantially. Other cases involve the destruction of coastal forests for touristic and residential developments. The ASSAUPAMAR feels that this problem is increasing, and that its impacts are extremely serious. The ASSAUPAMAR also finds an issue in the expansion of flower cultivation, and in the fact that it is sometimes done after removal of the forest cover.

## The impact of public sector infrastructural developments

Resource management agencies and non-governmental organizations, notably the Société des Galeries de Géologie et de Botanique, are concerned about the impacts of public sector infrastructural development on the forest resources. One current issue revolves around a proposal by the national electricity company to run a high tension line across the mountain from Bellefontaine on the west coast to Marigot on the east coast. All NGOs and forest management agencies are opposed to this project. Tourism projects have also been proposed on various occasions for sites which are considered sensitive and inadequate by resource management agencies. Generally, it is felt that the major threat to the forest resource is no longer the threat of deforestation, as was the case only a decade ago, but the menace caused by non-forestry activities which impact on the forest resource.

## The impact of tourism activity

A number of actors, notably the ASSAUPAMAR, are concerned about the environmental impacts of tourism, and indicate that rivers are increasingly polluted, that visitors often gather important or endangered species, and that the forest is being turned into a tourism product, at the expense of local users.

# 5. PROCESSES AND MECHANISMS OF POLICY FORMATION

The case of the preparation of the forest management plan for 1994-2003 is used to describe the processes employed by the Office National des Forêts in the formulation of policy. The ONF reports that it used two main phases:

- a first phase, called "analysis", which involved:
  1. a literature review
  2. a revision and updating of cartographic data
  3. the conduct of surveys with field staff to gather their views
  4. field visits to selected areas
  5. an inventory of degraded areas
  6. a detailed description of the status of established plantations
  7. an analysis of techniques and equipment used in silviculture (plantation, maintenance and harvesting)

- a second phase, called "synthesis", which involved:
  1. a summary of environmental and socio-economic data
  2. an identification of management options
  3. the formulation of the management plan

All activities were actually conducted or led by a member of the staff of the Office National des Forêts, under the supervision of its regional director for Martinique.

Following the preparation of the management plan, formal approval was sought from the Conseil Général, as the owner of most of the land, but also as the elected body representing the people of Martinique, and from the general directorate of the Office National des Forêts in Paris. The management plan came into force through a decision from the Minister of Agriculture, as is the case for all forest management plans in France.

The practice of one non-governmental organization, the ASSAUPAMAR, should be briefly described in this section, because of its significance and its impact on forest policy. In its efforts to advocate the protection of the environment, and with specific reference to forestry issues, the organization uses a strategy which combines:

- public awareness campaigns, often in alliance with other interest groups or organizations;
- protests in the field to oppose specific projects and to focus public attention on specific situations or problems;
- use of legal recourse to denounce and stop governmental decisions and actions which are contrary to existing legislation. For example, the group would frequently appeal against building permissions, land use plans and other decisions, using existing legislation to support its claims.

# 6. POTENTIALS OF THE SECTOR

An analysis of the potential of the forestry sector can best be done by looking at the various functions of the resource, and determining, for each of these functions, the main constraints and opportunities.

| *Function* | *Potential* |
|---|---|
| *watershed conservation* | With the extremely high demand for water in Martinique, and with the continued growth of the tourism sector, there is need to manage the water supply carefully. The primary function of forest management in Martinique must be to conserve water resources. |
| *tourism development* | The forest already forms a part of the tourism product of Martinique. There is potential to increase this contribution, notably with the development of trails, recreation areas and other forest-based attractions and activities, but this must be done with extreme care. |
| *recreation* | The forest's potential for recreation is not fully exploited as yet. The presence of a poisonous snake limits that potential to some extent, but there remain important possibilities. |
| *biodiversity conservation* | The flora and fauna of Martinique are unique, valuable, and constitute important assets for development. Biodiversity conservation must remain a primary objective of forest management. |
| *timber production* | In its mahogany plantations, Martinique possesses a capital which is likely to gain value in the years to come. Although the exploitation of this resource is currently uneconomical, it is obvious that improvements in harvesting techniques and better linkages with users of timber resources could improve benefits. Efforts should also be made to increase the value of locally produced mahogany. The potential for timber production on private lands is also important, and needs to be developed. |

# 7. INSTITUTIONAL ARRANGEMENTS

Martinique is both a Département and a Région in the French political and administrative system. The French government is represented, in the Département, by a Préfet, and by directorates for each of the ministries or major state agencies.

Both the Département and the Région have elected political assemblies. For the Région, the Conseil Régional has the responsibility for the overall planning framework for the island's economic development, and for the development of specific economic sectors. For the Département, the Conseil Général manages properties and assumes primary responsibility for social infrastructure and services.

Local government agencies are the municipalities, headed by elected mayors and municipal councils, and responsible for local level social services and for the formulation and implementation of land use plans. They also have the power to own land and property, and are engaged in a wide range of developmental activities within their territory.

The institution responsible for the management of forest resources is the Office National des Forêts, a statutory body created in 1964. It is organized in regions, with a Direction Régionale for each of these regions. There is, therefore, a Direction Régionale in Martinique, which has responsibility for the management of the forêt départementalo-domaniale and the forêt départementale (see above). The Office National des Forêts can also assume responsibility for the management of other properties, under contractual agreements, as is the case for the management of the Grand Macabou, a property of the Conservatoire de l'Espace Littoral et des Rivages Lacustres.

The current staffing and organizational structure of the Office National des Forêts in Martinique is as follows:

- one Regional Director and one Assistant
- one administrative section, with 13 staff members
- one education and conservation unit, with four staff members
- one project (design and implementation) unit, with seven staff members

- one unit responsible for the forest management mandate of the Ministry of Agriculture, with three staff members
- three field sections, one for each territorial range, with a total of 14 foresters
- field workers and labourers, attached to each territorial range

## 8. POLICY STUDIES

Over the past ten years, there has not been any study focusing on any aspect of forest policy in Martinique.

## 9. CONCLUSIONS AND RECOMMENDATIONS

This study of Martinique points to directions from which interesting and valuable lessons on the process and content of forest policy could be extracted. The main points which warrant emphasis are as follows:

- there has been a very rapid evolution of issues over the past decade. Ten years ago, conflicts over forest management and use were acute; today, there is a consensus on the functions, use and management of the public forest estate in Martinique among most of the institutions directly concerned. The process of consensus-building is one which would be interesting to analyse in depth;
- the experience of the 1970s and 1980s could provide a useful example of advocacy work, illustrating the manner in which civil society is able to influence forest policy formulation. Within the region, Martinique stands out as unique in this regard;
- the development and management of mahogany plantations also provides extremely interesting lessons, especially if one draws a comparison between Martinique and Guadeloupe, where the institutional context is similar, but where the history, context, process and conditions of forest plantations have been different, producing very different results. There are lessons to be drawn from that experience.

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# FORESTRY POLICIES IN THE NETHERLANDS ANTILLES AND ARUBA

by Tim van den Brink

## 1. INTRODUCTION

### 1.1 Brief characterization of the islands

The Netherlands Antilles and Aruba are two autonomous countries within the Kingdom of the Netherlands. The Netherlands Antilles consist of the Windward Islands Saba, Saint Eustatius (also referred to as Statia) and Saint Martin located in the Northern Caribbean and the Leeward Islands Curaçao and Bonaire, which are situated close to the continent of South America. Aruba is located west of Curaçao.

table 1.1 summarizes a number of general characteristics of the Islands in the Caribbean region.

***Table 1.1 General characteristics of the Islands of the Netherlands Antilles and Aruba***

| | *Aruba* | *Bonaire* | *Curaçao* | *Saba* | *Statia* | *St Martin* |
|---|---|---|---|---|---|---|
| size ($km^2$)[1] | 190 | 288 | 444 | 13 | 21 | 34 |
| population[2] (1995) | 83.652 | 14.218 | 151.448 | 1.200 | 1.900 | 38.567 |
| precipitation[1] (mm; mean/year) | 425,5 | 503,7 | 567,2 | 1101,3 | 1072,7 | 1061,7 |
| highest point[1] (m) | 189 | 240,8 | 375,4 | 870,4 | 600 | 391 |
| main source of income | tourism refinery | tourism | services industry | tourism | tourism oil-terminal | tourism |

1. De Palm, J. (1985) Encyclopedie van de Nederlandse Antillen
2. Almanak of the Netherlands Antilles on the Internet: http://www/gov.an, except for Aruba: CBS Aruba)

Brief description of vegetation characteristics (source: World Wildlife Fund, 1997 and Carmabi)

On the northern, windward coasts of the Leeward Islands (Aruba, Curaçao, Bonaire) the landscape is rough and desert-like with little vegetation. More inland and on the south coasts, the islands harbour an open depressed shrub vegetation intermingled with cacti, thorny woodland and the remarkable windblown divi-divi tree *(Caesalpinia coriaria)*. The woodlands can also be distinguished geologically: on the limestone terraces evergreen woodlands are typical, on volcanic underground usually deciduous woodlands are found. Mangrove stands can be found in the less disturbed saliñas and lagoons on the south coast.

The Windward Islands have more rainfall and are less subject to the wind. They lack the desert-like landscapes of the Leeward Islands. The coastal area of the Windward Islands is characterized by open, depressed shrub vegetation mixed with cacti and thorny woodland. On St. Martin, mangroves can be found in lagoons and ponds. Saba and Statia, however, do not have inner bays, mangrove forests, saliñas or lagoons.

In general, the lower parts of all islands inland can be characterized as evergreen or semi-deciduous woodlands mixed with cactus scrub, thorny woodland and/or 'croton-lantana' thickets. Most plants in the lower areas are adapted to conditions of drought

The hills are characterized by evergreen and/or semi-deciduous seasonal forests. Plants and trees have larger leaves, there are fewer thorny species due to a slightly lower temperature and a higher humidity.

Statia and Saba are the only Dutch Caribbean islands where an elfin forest can be found. Saba, furthermore, harbours a secondary rain forest and two patches of primary rain forest. Statia has no rain forests, but the crater of Quill Mountain accommodates an evergreen seasonal forest.

In the past, all islands suffered from deforestation for the purpose of agriculture, cattle breeding, the export of brazilwood (*Haematoxylon brasiletto*) and pockwood (*Guaiacum officinale*), gold mining (Aruba) and large-scale aloe culture (Aruba and Bonaire). During the course of the current century, development of the oil industry and tourism has become the main reason for deforestation. In particular Aruba, Curaçao and St. Martin have been heavily developed at the expense of nature.

However, on each of the islands there are still areas of great natural value. The forests of Saba and Statia have already been mentioned. Curaçao has numerous valuable areas of which the ones with high priority for conservation are found in the Christoffelpark and surroundings and in the eastern part of the island ("Oostpunt"). Aruba has its Arikok Jamanota Park, Bonaire the Washington-Slagbaai Park (among others), while on St. Martin, the hillsides are valuable.

## 1.2 What is forestry in the Netherlands Antilles and Aruba

### *Use of the term forest*

With the organizations and persons listed in the Appendix, it was discussed how to use the term forest with respect to the Netherlands Antilles. This resulted in the following:

Climax vegetation dominated by tree species are rarely found in the Netherlands Antilles. Forests in the common sense of the word can only be observed on Saba and Statia, covering small areas, usually on hill tops where water supply is sufficient to support tree growth.

In the Netherlands Antilles and Aruba, (thorny) woodlands, protected areas including mangrove areas, urban parks and trees for agricultural and commercial purposes are considered to fit the definition of forest as well. Even single trees are included in the definition if they form important esthetical elements in town or in the landscape.

Functions attributed to forests by the interviewed are diverse. In a non-prioritizing order: (1) upgrading of landscape, (2) production of fruits, (3) production of cattle fodder (leafs), (4) charcoal-production, (5) soil and (ground) water conservation, (6) support of tourism, development of ecotourism, recreation, bird-watching, (7) support of social well being, (8) support of biodiversity. Some additional remarks have to be made:

*Production of timber*: No forest industry exists in the Netherlands Antilles, the demand for forestry products is met by imports.

*Production of fruits, cattle fodder and charcoal*: The contribution of these activities to the local economies is unknown, but is considered very small (source: Departments of Agriculture and Fisheries of Aruba, Bonaire, Curaçao, Statia and Saint-Martin).

*Watershed management*: On the larger islands of the Netherlands Antilles (Curaçao, Bonaire and Saint-Martin) desalination plants produce potable water. The same is true for Aruba. No watershed management is applied for the production of potable water. Only in small amounts, deep-well water is used for cattle and other agricultural use (e.g. in Bonaire, where distribution is a subsidized government service).

On Saba and Statia no public water supply exists. Houses are equipped with cisterns for rainwater.

*Reforestation*: In the 1960s and 1970s several reforestation projects have been carried out, especially on Curaçao and Aruba. The results, however, were disappointing. Young trees could not sufficiently be protected against goats (Aruba) and the continuity of after-care was insufficient because of lacking

financial means (Curaçao). In Section 5 the potentialities, with respect to reforestation, are discussed briefly.

The Departments of Agriculture and Fisheries on Aruba, Bonaire, Curaçao and Saint Martin manage small-scale tree nurseries for mainly local tree species. The trees are used for agricultural purposes, amenity planting in parks, new housing projects and along public roads. Agricultural use is often subsidized by the Government.

Parks and protected areas: On Bonaire, the Washington Park was founded in 1969 (in 1979 Slagbaai was added). On Curaçao, the Christoffelpark was founded in 1978. Although serious steps are being taken towards legal protection, these terrestrial nature parks still lack a legal basis.

Besides these parks, the National Government of the Netherlands Antilles intends to bring about the installation and legal protection of new terrestrial parks on each of the islands: Klein Bonaire (Bonaire), Oostpunt (Curaçao), Mount Scenery (Saba), The Quill (Saint Eustatius) and the Hillsides (Saint Martin).

## *Use of the term forestry*

Forestry is considered to be all governmental involvement -including delegated responsibilities- in forests and their functions as defined above. The governments of the Netherlands Antilles and Aruba have never defined forestry as a policy area as such, nor did they assign any department to be responsible for this whole field. Instead, different departments are responsible for different subtasks.

In the Netherlands Antilles and Aruba, governmental involvement in forestry is contained in four main areas:

- development policies (island level);
- nature policies (national and island level)
- "nature based" tourism policies (island level)
- land use policies (island level).

Supporting activities or specific tasks related to implementation are considered, inter alia:

- legislation on area planning (island level);
- legislation on nature protection (national and island level);
- establishing nature parks (national and island level);
- financing of projects and related tasks (maintenance of urban parks and public green, etc.);
- subsidizing private organizations (NGOs);
- physical actions such as planting programmes, management of tree-nurseries, mangrove planting.

## *Object of analysis*

This study focuses on analysing the policies regarding (aspects of) forestry: the way they are initiated and how they respond to relevant issues, the process of policy formation, the key institutions in this process, the relation to other policy areas, and policy implementation and evaluation.

## 1.3 Socio-economic profile

### *1.3.1 Netherlands Antilles*

**Fiscal arrangements (source: IDB, 1997)**

The Island Government of Curaçao enjoys a considerable degree of autonomy within the Netherlands Antilles by virtue of its relative size, levying and collecting some of its own taxes and with the power to borrow independently. The Island Governments collect all direct taxes while most indirect taxes are collected by the Central Government. The Curaçao Island Government must transfer 25 percent of the direct taxes collected to the Central Government and in return the Central Government is obliged to transfer 50 percent of indirect taxes collected in Curaçao to the Island Government. The smaller islands do not participate in this arrangement but receive contributions from the 'solidarity fund', which is financed jointly by the Central Government (55 percent), Aruba (25 percent) and the Netherlands (20 percent). In contrast to Curaçao, the governments of the smaller islands are required to show balanced budgets.

**Economic Performance (source: IDB, 1997)**

The Islands of the Netherlands Antilles enjoy a relatively high standard of living reflected in a per capita income of US$10.850 in 1993 (IDB, 1997). Since 1990, economic performance has slowed down and has come to stagnate altogether since 1995. In September of that year, hurricane Luis caused a severe disruption of tourism on the Windward Islands leading to unemployment and a loss of income.

Unemployment in the Netherlands Antilles amounts up to app. 13 percent on average with a high incidence among the young (CBS Netherlands Antilles, 1996). Large differences can be observed between the islands, however, with Bonaire and Saba experiencing virtually full employment.

Another limiting factor for economic growth is formed by the high interest rates (13 percent nominal, at low levels of inflation). Domestic debts caused by fiscal imbalances may have contributed to these high interest rates. In the period 1992-95, the budget deficit as a proportion of GDP varied between 1,5 percent and 2,1 percent for the Central Government and 3,5 percent to 4,7 percent for the Island Government of Curaçao (IDB, 1997).

The largest contributors to GDP are: financial and business services (23 percent), tourism (15 percent), manufacturing (6 percent), the public sector (18 percent). A small contribution to GDP of agriculture, fishing and mining of 0,9 percent is related to the very limited availability of arable land and suitable water. On Statia -by comparison- a relatively high percentage of the working population is employed in the agricultural sector: 13.6 percent (1994).

On the larger islands, Aruba, Bonaire, Curaçao and Saint Martin, drinking water is available from desalination plants. On these islands water is very expensive (app. US$5 per $m^3$). On Saba and Statia island residents depend on the collection of rainwater in cisterns.

Water for agriculture is usually from deep-wells. In some occasions treated wastewater is applied.

The tourism sector has experienced a considerable growth rate on the islands of Saint Martin and Bonaire for the last 25 years. The development of the sector is given in comparison with the developments on Aruba in table 1.3. Tourism is considered the sector with the highest potential for development for the Netherlands Antilles (IDB 1997, Economic Affairs Curaçao, 1997).

The Netherlands Antilles show a typical pattern of merchandize deficits, leading to rising current account deficits. Services surpluses and rising net capital inflows failed to compensate this process.

Consequently, the stock of reserves has fallen seriously, providing an import cover of 1,6 months in 1996 (IDB, 1997).

The Government of the Netherlands Antilles and the IMF have agreed on a stabilization monitoring programme for the Netherlands Antilles. One of its goals is to come to a budget deficit of 2 percent in 1997. Early indications however show that this target will not be achieved in 1997 (IDB, 1997).

For the largest island of the Netherlands Antilles, Curaçao, the import of wood is given in table 1.2 (year 1995, source: Central Bureau of Statistics Netherlands Antilles).

***Table 1.2 Import of wood in Curaçao N.A. 1995***

| *Type of wood* | *value US$ x 1000* | *main supplier* |
|---|---|---|
| Fuel wood and woodwaste (including sawdust) | 153 | USA (52 percent) |
| Rough lumber or roughly squared | 379 | Netherl. (71 percent) |
| Wood shaped or simply worked, sawn of pinetree | 934 | USA (84 percent) |
| Wood shaped or simply worked, sawn of other | 4.844 | USA (78 percent) |
| Cork | 9 | Portugal (62 percent) |
| Total | 6.319 | |

The building sector consumes most of the imported lumber and wood products.

In 1995 a small amount of wood was exported from Curaçao, mainly shaped or simply worked. The value of the export was app. US$60,000.

**Social conditions and human resource base**

The IDB (1997) describes the social welfare system of the Netherlands Antilles as relatively elaborate. The system includes compulsory social security coverage for workers having an income below a prescribed level, some elements of sickness insurance, welfare benefit, free medical treatment, accident insurance for coverage while at the workplace, compulsory old age pension scheme and a so-called cessantia, a lump-sum severance pay. These schemes are financed by contributions from the workers, employers and the government. According to the IDB (1997), the social welfare system is coming under pressure because of failure of the Island Governments to fulfil their financial obligations and a demographic transition which is increasing the dependency burden due to the proportion of senior citizens in the population.

Education generally shows good results at the primary school level. The secondary and tertiary levels, however, have serious problems concerning dropouts. As a consequence, there is a lack of local qualified management personnel and experts (IDB, 1997).

Housing standards are generally good. The IDB (1997) states that 90 percent of the houses are assessed to be in a reasonable condition. However, this is the mean of the five islands of the Netherlands Antilles. Conditions on Curaçao, for instance, where eight percent of the houses were in bad condition and five percent without electricity in 1992, are better than on St. Martin and St. Eustatius where 31 and 18 percent, respectively, were in bad condition. On St. Martin, nearly 25 percent had no toilet, sewage, running water and electricity.

## *1.3.2 Aruba*

Regarding the GDP per capita (US$16.630, Statistical Yearbook, CBS, 1996), Aruba subsists among the richest countries of the world. The economy of Aruba is however virtually completely dependent on tourism for income. Efforts are being made to diversify into new areas such as offshore finance.

***Table 1.3 Development of tourism on Aruba and Netherlands Antilles***

| Year | Aruba | Curaçao | Saint Martin | Bonaire |
|---|---|---|---|---|
| 1970 | 80.000 | 101.600 | 73.000 | |
| 1975 | 128.800 | 103.300 | 128.900 | |
| 1980 | 188.900 | 184.700 | 179.000 | (1985:) 21.787 |
| 1990 | 432.900 | 207.700 | 565.000 | 37.434 |
| 1992 | 541.700 | 206.900 | 532.600 | 50.603 |
| 1996 | 640.800(*) | 214.300 | 350.700(*) | 65.000 |
| 1997 | > 100.000 | -- | -- | -- |

(*) Effect of Hurricane Luis, September 1995
Source: CBS/Quarterly bulletin BNA (In: Initiative for an Action Programme for Economic Recovery Netherlands Antilles, Department of Economic Affairs Curaçao, 1997).

There is very little unemployment in Aruba (1994: 4 percent) which resulted in labour imports for large projects, such as the refinery and construction work (CBS, 1996).

The import of wood products amounted to US$12 million in 1996 (source: Central Bureau of Statistics Aruba, Foreign Trade Statistics).

### *1.3.3 Overview of economic indicators*

In the following table an overview of economic indicators is given:

***Table 1.4 Economic indicators Netherlands Antilles and Aruba 1993-1995***

| | Netherlands Antilles | | | Aruba | | |
|---|---|---|---|---|---|---|
| Economic indicators | 1993 | 1994 | 1995 | 1993 | 1994 | 1995 |
| GDP US$ (million) | 3806.8 | | | 1177 | 1330 | 1441 |
| GDP per capita US$ | 10850 | | | | 16630 | |
| Consumer price index (%) | (1) 2.5 | (1) 1.7 | (1) 3.1 | 6.4 | 4.7 | 3.1 |
| Population | 197069 | 202351 | 207333 | | 80333 | |
| Exports fob US$ (million) | (2) 2276 | (2) 1730 | | | (4) 1063 | |
| Imports cif US$ (million) (3) | (2) 3085 | (2) 2462 | | | (4) 999 | |
| Current account US$ (million) | 0.33 | -91.8 | | | 63.9 | |

(1) For Leeward Islands
(2) Curaçao
(3) The conversion of imports from cif prices to fob prices will be regarded in the future
(4) Oil and oil products not included (classified): Central Bureau of Statistics Netherlands Antilles, Statistical Yearbook 1996; Central Bureau of Statistics Aruba, National Accounts of Aruba, 1996; Central Bureau of Statistics Aruba, Statistical Yearbook 1996

## 1.4 The national development context

During a conference held from 25 April to 6 May 1994, 111 countries including the Netherlands Antilles and Aruba, adopted the Barbados Declaration and Programme of Action. Based on Agenda 21, the Declaration elaborates principles and strategies for development that aim at protecting the fragile environments of Small Island Developing States (SIDS).

The Declaration states that SIDS should "endeavour to achieve the goals of sustainable development by, inter alia, formulating and implementing policies, strategies and programmes that take into account development, health and environmental goals, strengthening of institutions, and mobilizing all available resources, all of which are aimed at improving the quality of life".

No uniform development policy exists at the level of the Central Government of the Netherlands Antilles. The Islands themselves give direction to the process on an individual basis (see Section 4). The Central Government plays an intermediate and supporting role in this process.

A number of studies that have been carried out (e.g. World Bank, 1986; IDB, 1997) include strategic recommendations to the Central Government. These recommendations - which are also reflected in most of the Island Development Plans - can be summarized as follows: stimulation of tourism and diversification within the tourism sector, stimulation of the financial services sector, and diversification of the economy in general (stimulation of small enterprises, light industry).

The recently established development plans all point at the importance of preserving the fragile ecosystems of the islands. Although many of the principles, objectives and proposed activities described in Agenda 21 can be recognized in these development plans and programmes, no structural translation of Agenda 21 takes place during the process of policy formation. This is also true for the Forestry Principles agreed to at UNCED. For the Convention on Biological Diversity, however, implementation of legislation is in its final stage (see § 2.1).

# 2. CURRENT FORESTRY POLICIES

In the following sections, forestry related policies for the Netherlands Antilles (§ 2.1) and Aruba (§ 2.2) are described. Policies are described in chronological order, which gives a better understanding of the development of the policies than a description based on the hierarchy of the policies does, because policy makers often tend to refer to earlier policies.

## 2.1 Policies Central Government Netherlands Antilles

### *2.1.1 International Conventions, Declarations and agreements*

The Netherlands Antilles are a Party to a number of Conventions and expressed their will to be Party to others also. In addition the Netherlands Antilles have signed a number of Declarations. These Conventions and Declarations are described below.

**CITES Convention**

The legislation for implementation for this Convention has been established recently (see § 2.1.2). The CITES Convention was one of the first international Conventions the Netherlands Antilles wanted to join. The preparation of the CITES-legislation stimulated the formulation of legislation for compliance with other Conventions as well (see National Ordinance on Nature protection and management).

**Ramsar Convention**

The "Wetlands Convention" came in effect for the Netherlands Antilles in January 1st, 1986. The objective of the Convention is the protection of wetlands, in particular wetlands of international importance.

Parties commit themselves to protect wetlands of international importance, by means of establishing protected parks and adopting proper management regimes. The Netherlands Antilles have presented five wetlands at the Bureau of the Convention (IUCN): Lac Bay, Goto-meer, Slagbaai, Klein Bonaire and Pekelmeer, all of which are on Bonaire. For this study on forestry policies it is important that many Antillean wetlands such as the Lac Bay are important mangrove areas.

**SPAW Protocol (Cartagena Convention)**

The objective of the Protocol -which has been adopted by the Netherlands Antilles- is to protect valuable marine species and areas, by designating protected areas and adopting favourable management strategies. With respect to this study, the Protocol has relevance for the coastal mangrove areas.

**UNCED Conference**

The United Nations Conference on Environment and Development held in June 1992 resulted in a number of documents with respect to environment and development including the Rio Declaration, Agenda 21 and the Forest Principles. Parallel to the Conference, the Biodiversity Convention and the Climate Convention came about.

The Netherlands Antilles have expressed their will to be a Party of these Conventions and prepare the necessary arrangements within the Kingdom. The countries agreed upon the Declarations and Statements by consensus.

The Biodiversity Convention aims at the sustainable use of the components that promote biodiversity. For the Netherlands Antilles (and Aruba) it is important that the Convention could be used to serve as a basis to designate a system of protected areas in order to secure the maintenance of biodiversity on the islands separately and for the whole Netherlands Antilles.

Agenda 21 is a global Action Programme for sustainable development. Besides emphasis on resource management, this programme also considers social and economic development and means for implementation as important issues.

The Forestry Principles form a rough basis for international cooperation towards more sustainable forms of forestry.

**Barbados Declaration**

In May 1994, the Government of the Netherlands Antilles adopted the Barbados Declaration and Programme of Action, which is based on Agenda 21.

In the Barbados Declaration, it is recognized that small island states, have relatively more difficulties than other countries in reaching sustainable development.

With respect to deforestation and related problems, several national, regional and international actions were proposed. National: improving data collection (e.g. by means of GIS and databases) and dissemination of this information to support rational land use planning; formulation of laws, support of forestation and reforestation programmes, strengthening of physical planning offices. Regional: development of training and capacity building opportunities and information exchange on sustainable land use practices and policies. International: facilitation of the above mentioned desired actions.

**Lomé and OCT**

Comparable to the Lomé Convention for the EU and ACP Countries, a separate Council Decision was established for overseas countries and territories (OCT). In this Council Decision of 25 July 1991 on the Association of the Overseas Countries and Territories with the European Community, the development cooperation between the EU and the OCT is central. The Council Decision forms the basis of substantial funding for development programmes for the Netherlands Antilles and Aruba.

The focal areas for development are usually defined by the recipient. When an agreement with the EC-representation is reached in terms of contents of the programme and amount of support, a separate financing agreement is established between the EC and the Netherlands Antilles or Aruba. In

the case of the Netherlands Antilles, the programme is further detailed to the needs of the distinctive islands. Until now the focal areas have been as follows:

| | |
|---|---|
| EDF 5 and 6: | tourism |
| EDF 7: | human resource |
| EDF 8 (in preparation): | education, socio-economic development and infrastructure |

## 2.1.2 National policies

**Tourism Development Programme Netherlands Antilles and Financing Agreement 1991**

The Netherlands Antilles and the EU have signed a Financing Agreement on the implementation of the Tourism Development Programme for the Netherlands Antilles (TDP). The five Island Territories, with assistance of consultants and the Department for Development Cooperation (DepOS), drew up Strategic Masterplans (see island policies). These Masterplans formed the basis of the TDP's for the Islands (combined in the Antillean TDP).

Funding of the TDP has taken place (and still takes place) through the 5th and the 6th European Development Fund. Inputs in the Programme are:

1. Technical Assistance and Studies
2. Training
3. Promotion, marketing support, statistics
4. Product improvement

The total EU contribution amounts to 19.15 MECU (grants: 10.35 MECU and loans: 8.8 MECU). The Programme is anticipated to upgrade tourism institutions, stimulate investments, increase bednights sold (by 80 percent), increase employment within the sector (by 70 percent) and increase government revenue from the sector (by 85 percent).

No new environmental risks are expected to result from this programme, which will, however, reinforce environmental monitoring and promote consequent action. Special conditions to the financial support are, inter alia,

- the production of quarterly and biannual reports on the progress of the Programme
- the enforcement of existing legislation and introduction of new legislation, in order to safeguard that future developments are in line with the specific physical masterplans which are prepared within this programme.

Implementation is discussed on the level of the Islands (section 2.2 and further).

**National Ordinance on nature protection and management (drafts 1992, 1996/final 1998)**

Since the 1980s, the Antilles participate in a number of international Conventions. However, during the first years compliance with the international agreements was poor. Moreover, national policies and island policies were poorly coordinated. This situation was one of the reasons for the Antillean Minister of Public Health to install a new Sub-department for Environment and Nature under the Department of Public Health (from that time: Public Health and Environment).

The establishment of the National Ordinance on nature protection and management was a logical next step. The direct motive was the determination of the Netherlands Antilles to join the CITES Convention. A precondition for acceding is to have legislation for implementation in effect. It was soon decided that other relevant Conventions on nature management would be implemented as well.

The objective of the Ordinance is threefold (source: Department of Public Health and Environment-VOMIL): (1) to comply with international Conventions with respect to nature protection, (2) to create a

legal basis for national nature policy, and (3) to coordinate and harmonize national and island policies and legislation.

In 1992 an employee of the sub-department for environment and nature was appointed to write this Ordinance. The content of the Ordinance can be summarized as follows: The Minister of Public Health and Environment prepares a Nature Policy Plan every five years in consultation with the Island Executive Councils. A linkage with other government efforts is given in article 2, in which it is stated that in the preparation of this plan, special attention has to be paid to the land use policies of the Island Territories.

On the basis of the National Ordinance, the Executive Councils of the Island Territories will draw a Nature Plan for their Territories, which will have to be in accordance with the National Plan and with the principles of the International Conventions acceded to by the Netherlands Antilles.

Furthermore, the Island Councils are instructed to establish Island Ordinances on nature protection and management. In case of non-compliance, the Ordinance will be established by the Central Government itself. The Island Councils are further instructed to establish regulations that meet the relevant International Conventions (see section 2.1.1), among others by legally regulating the establishment of protected areas.

The National Ordinance was accepted by the Parliament in January 1998, and will come into effect after publication. Implementation has not yet taken place. The Island Governments, however, anticipated on the contents of the Ordinance: the islands of Bonaire and Saba already prepared their Nature Policy Plans. The Island of Statia has an Ordinance on flora and fauna in effect. Saint Martin is working on a Hillsides Policy and a Nature Policy Plan.

**Contourplan (1996)**

In 1995, the Minister of Public Health and Environment initiated the development of the so-called Contourplan. The Contourplan is a policy outline and is a first step towards a more elaborate environmental and nature conservation policy, which will be formulated as soon as national legislation on environment and nature is in effect.

The policy outline is based on two principles, namely the concept of sustainable development (as formulated at the UNCED Conference, 1992) and the concept of small island developing states (as formulated in Barbados, 1994). The second concept puts the first in a more realistic context, as small islands have more difficulties in reaching sustainable development than mainland countries. The policy outline can be referred to as a policy programme, in which proposals for legislation, organization and financing have been included.

The policy concentrates on five issues that are relevant to all five islands of the Netherlands Antilles: (1) waste and waste water, (2) oil and the environment, (3) tourism, environment and nature, (4) nature conservation and (5) environmental awareness.

Of the five chosen policy areas, the areas "nature management" and "tourism, environment and nature" and "environmental awareness" are relevant for this study.

ad (3) The objective of the policy area tourism, environment and nature is: "to come to a sustainable form of tourism".

According to the Contourplan, the Netherlands Antilles are tourist destinations because of their beautiful nature. Only in balance with nature can tourism be economically on the long term. Spatial planning of tourism projects and nature management in to tourism are two important priorities in the period 1996-2000.

ad (4) The objective of the policy area nature conservation is "to come to a network of protected nature areas, representative for the ecosystems of the Netherlands Antilles" and "to take care that the existence of original species of the Antillean islands will not be endangered".

The approach chosen in the nature policy is that the islands will develop proposals for protection of important natural areas and for protection of important species. The islands are free to identify the most important areas and species. In the Contourplan it is recommended, however, that five large areas would be defined as National Parks: Klein Bonaire (Bonaire), Oostpunt (Curaçao), Mount Scenery (Saba), The Quill (Saint Eustatius) and the Hillsides (Saint Martin).

Besides the designation of the areas (according to IUCN criteria), the legal status of the areas and the actual management of the areas are considered high priorities.

ad (5) The objective of the policy area environmental awareness: "to realize that the people of the Antilles feel responsible for their environment".

The Government recognizes that realization of the different policy objectives, demands broad support from all sections of society. The Government will try to increase environmental awareness by stimulating existing initiatives and NGOs, cooperation with educational institutes, the media and the private sector.

The plan aims at integration of the policy principles into other policy areas. Although no concrete proposals for integration of policies are formulated, it is considered to be important -according to the plan- to cooperate with the Departments of Economic Affairs and Development Planning, as well as to cooperate with the education institutes, industry and the hotel sector.

In 1995 the Sub-department for Environment and Nature consisted of two employees, with expertise on nature management and environmental issues. In 1995, a technical assistant from the Netherlands was added to the sub-department to assist in the process of policy formation. The process of policy formation has been an interactive one. From the local governments and NGOs on the Antillean islands, input was requested in the orientation phase. Subsequently, central meetings were held with all the appointed environmental focal points on the islands. On the basis of the meetings a draft was prepared that was offered to, and approved by, the Executive Council of the Central Government. The plan has been offered formally to the islands and to the national Parliament for advice.

No policy analysis was applied. Policy analysis -in terms of investigating feasible options- was considered an important phase in the process but the limited resources of the Sub-department did not allow this.

The policy plan concludes with a programme for five years (1996-2000). The programme is linked to a budget. The budget for nature management amounts to app. $150,000 a year for 1997 and 1998, which is meant for assistance for the islands (desk studies, short missions, legislative support etc). In addition, budgets are reserved for assistance on the Nature Policy Plans for the Antillean islands ($80,000) and mediatory assistance is offered to the islands for purchase of important natural areas.

Programme and budget are accorded by the Executive Council of the N.A. Also KabNA, the Dutch Ministry for Antillean Affairs, has agreed on the budget recently. A special Commission, with members from DepOS, KabNA and VOMIL, will decide on the individual projects that are submitted.

Although the policy is relatively young, it has been noticed that the processes on the separate islands, i.e. legislation and policy formation, are progressing at a faster rate than before. On Saba and Bonaire -with the help of the sub-department- Nature Policy Plans came about, which are in the process of political discussion. In addition, more coherence in policies between the islands can be observed.

Political support on the Antillean islands - which are responsible for the implementation of the Contourplan - is considered essential for the realization of the objectives on the islands. A possible constraint for the implementation of the policy plan, the lack of capacity on the islands, could partly be solved with the assistance of the sub-department: e.g. mediate to obtain personnel for legislation and management formulation.

The effects of the policy are evaluated in yearly conferences and meetings, however, no specific evaluation system is being applied.

## 2.2 Policies Bonaire

### Tourism Strategic Masterplan 1988 and Tourism Development Plan-TDP

The Tourism Strategic Masterplan is a demand study for upgrading of the tourist sector. It was established together with the Masterplans of all other Islands of the Netherlands Antilles. Because the study is largely outdated, only a summarized description of the Plan is given below.

The underlying objective of the Masterplan was to establish a framework of implementable strategies and mechanisms that will encourage the development of the tourism sector.

The policy makers believe that the future growth of tourism on Bonaire should be gradual and planned in order not to jeopardize the labour market, the social situation and the environment. The strategy for development involves a number of proposed actions:

1. Strengthening the administration of the sector: it is recommended that a new organization, the Tourism Development Corporation-TDC, be established. The primary functions would be: investment promotion and marketing;
2. Filling Bonaire's hotel rooms in the low summer months;.
3. Product improvement (among others: improving the Washington Slagbaai Park, walking trails, signposting);
4. Encouraging further but limited hotel developments;
5. Infrastructural improvement;
6. Planning considerations: growth of the tourism sector should be supported by a physical Plan for the sector and for Bonaire as a whole and by a legislative framework for the protection of the environment.

The Masterplan concludes with proposals for Technical Assistance and for Studies. For Technical Assistance a budget of app. MECU 3.5 was proposed for a period of three years. Approximately MECU 2 would be needed for product improvement and implementation of marketing strategies.

The Masterplan, together with the Masterplans of the other islands of the Netherlands Antilles, formed the basis for the Tourism Development Programme for the Netherlands Antilles. The TDP and the financing agreement with the EU that came along with it (paragraph 2.1.2), made partial implementation of the Masterplan possible. The "Bonaire-part" of the TDP is described below.

### The Tourism Development Programme Bonaire-TDP (1991)

The TDP is divided into four main areas of action: (1) technical assistance, (2) training, (3) marketing, promotion and information and (4) product improvement. The total funding for the programme amounted to app. 3.2 MECU for Bonaire (of which 1.2 MECU for works).

With the programme funding came available for Technical Assistance for, inter alia:

- the set-up of the Tourism Development Corporation-TDC;
- the formulating, coordination and implementation of a physical master plan for the island;
- the improvement of several scenic roads.

The TDP has been largely implemented. Until now however, no functioning master plan or physical plan for Bonaire exists. The funding for this part of the Technical Assistance will probably be refunded (source: National Department for Development Cooperation-DepOS).

Implementation was monitored by the Tourism Advisor, who was responsible for quarterly and bi-annual monitoring reports. An end-evaluation has been held at the end of the project in March 1996.

**Structure Plan 1990**

In 1990, an elaborate development plan (the "Structure Plan") was drawn up by a consultancy for the Executive Council of Bonaire. The plan consists of an outline land use plan and a quantitative analysis on different socio-economic development scenarios. Because the Island Council adopted the plan as a guideline in 1991, the plan can be referred to as a policy. The plan has the character of a policy programme, in which proposed legislation and organization have been elaborated. Also it is indicated whether the measures are to be financed by the Island Territory or by external funds (Central Government; The Netherlands).

The objective of the plan is to provide a framework for a sound socio-economic development of Bonaire. Two consultancies, one from Curaçao and one from the United States coordinated the work for the plan. Relevant governmental and non-governmental institutions and representatives of the private sector were interviewed and several workshops with them were organized.

The Structure Plan gives a number of policy proposals. Relevant for this study are the following:

- the fostering of sustained, though gradual, growth in tourism flows;
- the determination of the (optimum) level of tourist accommodations;
- the implementation of effective organizational structures, such as a Tourism Corporation for Bonaire;
- the encouraging of agricultural production in marginal areas (against the background of the threat of encroaching developments and the need for landscape conservation);
- the preservation of corridor and natural areas;
- the adoption of a Land Use Plan and Zoning Ordinance and the establishment of a professionally staffed Planning Unit within the Government.

In the Structure Plan a development potential analysis was carried out in which the effects of four different growth scenarios were evaluated. Effects were calculated for: total number of visitors, occupancy, investments, employment and government revenues. In the analysis, comparisons were made with other islands (Aruba, Saint Martin) in their first years of tourism development. It was considered that comparable developments for Bonaire would be undesirable if not impossible. In particular, the lack of qualified manpower and the need for massive labour imports could lead to social problems.

The policy has only partly been implemented. The Island Ordinance on Area Planning was issued in 1995. Among others, the Ordinance regulates that a land use plan will be formulated to guide the developments on Bonaire (see further).

The Structure Plan already provides an outline land use plan that was proposed to be detailed to a final land use plan. The DROB Department indicates that a review needs to be carried out before the plan can be used. The future land use plan will be a rough plan for the island combined with detailed sub-division plans. It is expected that this approach will make the political debate easier than a detailed plan for the whole island.

**Island Ordinance noxious plants control (1991)**

This Island Ordinance was established with the objective of providing an instrument to control noxious plants, such as the introduced species "palu di lechi" (Cryptostegia grandiflora). This plant is known to suffocate other plants, especially trees, on all Leeward Islands (including Aruba). The key article of the Ordinance is article 1 in which it is stated that owners and users of all lands are obligated to remove noxious plants (Cryptostegia grandiflora, or other plants that will be indicated by law).

**The Department of Agriculture initiated the preparation of this Ordinance**

The Ordinance has never been implemented, the main constraint for implementation proved to be the lack of financial means by LVV.

**Pourier Report 1992**

In December 1992, the Commission for Integral Socio-Economic Action, headed by Mr. M.A. Pourier, produced a report known as the Pourier report. The Commission was installed by the Executive Council of Bonaire on August 5th, 1992. The Commission was assigned to:

> "prepare a report in which the starting points for a social economic development of the island of Bonaire and the conditions for implementation are worked out".

This task can also be seen as the objective of the policy process that had to be started.

In the Pourier report it is stated -in short- that the future of Bonaire depends on the wise use of its natural resources. If well managed, these resources can provide a strong basis for the tourism-based economy on Bonaire for the long term. In doing so, Bonaire will grow to a financially independent status within the Netherlands Antilles and the Kingdom.

The policy is developed to address a number of problems and issues:

1. the rapid -tourism based- development of Bonaire from a quiet agricultural and fisheries community, bringing a lot of problems into the community (high prices, social problems).
2. the lack of implementation of recommendations in former reports;
3. the need to review the structure of development cooperation.

After the installation, the Commission started interviews with politicians, civil servants and many experts on relevant areas. These (sometimes written) interviews were considered very valuable because official statistics were scarce.

The Pourier Commission made analyses comparable to the ones for the Structure Plan and came to the same results. It was found that the coral reef was the limiting factor for a tourism based development for Bonaire. Based on figures of the World Bank it was estimated that the maximum number of tourists that can visit Bonaire on a sustainable basis would be 100,000 a year (at the moment: 65,000). This number can be enlarged only if sufficient reef-protection measures are taken or if other -on shore- attractions would be created or stimulated.

The Pourier report gives a number of recommendations. Relevant for this study are the following:

- The people of Bonaire have to be made aware of the importance of the capital good "environment", to create maximum support from society;
- Establishment of legislation for land use planning
- Limitation of growth of number of rooms, number of tourists (no more than 100.000 towards 1998);
- Equal and equitable distribution of the benefits of tourism in society, among others by education, planning and price control; also small scale (local) projects with a high added value are to be preferred;
- The public sector will use the income to reduce dependency from the Central Government and the Kingdom
- The public sector will have to reduce expenditure, among other by privatizing public agencies and increase revenues, e.g. by substantially increasing room tax; this can be motivated by the choice for quality tourism;
- The quality of public services has to be improved, as well as the collection and management of statistical information;
- The policy presented in this report has to be worked out in a separate Action Plan and in an update of the existing Public Investment Programme.

The report was accorded by the Executive Council in 1993. The implementation however has been hampered because of financial reasons (source: DROB, TCB). An implementation plan has been

presented (in draft) but no follow up was given due to lack of funds and change in the Government coalition.

A consultancy from Curaçao currently prepares a new Implementation Programme. This (draft) programme however is not a public document yet. Again, this document is a very elaborate one, for which virtually all stakeholders (governmental and non-governmental) on Bonaire are being consulted.

**Island Ordinance on Area Planning (1995)**

An Island Ordinance on Area Planning has been established in 1995. The Ordinance regulates among others the procedure for the establishment of a Physical Development Plan for the Island of Bonaire. A Physical Development Plan should consist of (article 4):

- a summary of the principles of development;
- one or more maps indicating specific use-zones;
- use-regulations;
- an explanatory note.

The Ordinance was drafted with the help of an advisor from the Dutch Government.

No final zoning plan has been established as yet.

**Coalition Agreement 1995-1999 (October 1995)**

The coalition agreement is a rough (not quantitatively motivated) plan for the coalition period. It is important that the principles of the Pourier report are affirmed. Tourism is seen as the main fundament for the economy, however, diversification within the tourism sector and in other sectors is considered important, any new developments have to be compatible with the tourist product offered by Bonaire, i.e. its natural resources.

**Nature Policy Plan Bonaire (draft 1997)**

The preparation of the Nature Policy Plan (NPP) of Bonaire was initiated by the Department of Area Planning and Public Works and the Bonaire Marine Park. For the preparation of the plan additional help was offered by the Central and Dutch Government (see Section 6 where the process of policy formation is extensively described).

The intention of the policy makers was to prepare a plan for joint effort to protect and conserve nature on the island. Therefore, the following issues have to be addressed:

- physical developments affecting areas;
- negative influence on ecological processes, e.g. erosion and groundwater use;
- disturbances.

The objective of the Nature Policy on Bonaire is formulated as follows: *"the conservation of all biological diversity on the island and in its surrounding waters using the most natural approaches. This approach will contribute to the well being of the citizens of Bonaire and to the development of sustainable use-forms, especially tourism "*.

This objective is worked out through (1) the protection of nature areas, and (2) the protection of species.

In the plan, a number of nature areas have been designated as National Parks. As far as relevant with respect to forestry, these are:

- Washington Slagbaai Park, a 6,000 ha large, mainly undisturbed area

- Lac Bay, an inner bay with important mangrove stands
- Klein Bonaire, an undisturbed 700 ha large island, with flora consisting of 76 plant species.

In addition, large areas have been designated as Island Parks and Protected Landscapes. Legal protection of the areas is planned to be established within five years by means of an Island Ordinance on nature conservation and a formalized land use plan.

From the viewpoint of species protection, the Kabana (Sabal sp.), a palmtree typical for Bonaire and Curaçao and possibly endemic, is considered important.

In the NPP, it is recognized that the policy affects certain economic sectors. This is especially true for tourism, agriculture and fisheries. Therefore, the policy makers aim for a strong participation of these sectors to realise the goals of the policy.

Examples of activities that will be developed in cooperation with tourism (private sector) are:

- the installation of facilities in nature parks/areas;
- the development of nature excursions.

Examples of activities that will be developed in cooperation with the agricultural sector are:

- stimulation of highly productive forms of agriculture in concentration areas as an alternative for extensive agriculture and goat grazing;
- the installation of a permit system to minimize tree cutting; reforestation of formerly cultivated, marginal lands;
- development of a rational water management (creation of water basins, reforestation).

The plan concludes with a programme of actions, a proposal for division of responsibilities and a proposal for funding of the costs.

The plan has not been formalized by the Executive Council and no implementation of the plan has taken place as yet. Especially the creation of a legal basis for parks and species protection (by means of a formalized land use plan and an Island Ordinance on nature conservation) are awaited.

**Strategic Tourism Masterplan**

A Strategic Tourism Masterplan for Bonaire is being developed by the Tourism Corporation Bonaire (TCB). Although the preliminary Plan is not available to the public yet it was commented by TCB that the principle starting point for the Plan is sustainable tourism, based on the quality of the unique nature of Bonaire. One of the key areas for action identified, is a range of programmes, for possible funding by external donors, to strengthen institutions and resources for both the Marine Park and the National Park and to undertake essential planning and works. In section 6, some aspects of the policy formation process will be discussed.

**Socio-economic Masterplan Bonaire**

The Socio-economic Masterplan Bonaire, which is the follow-up of the Pourier Report, is currently being prepared by a consultant in cooperation with DepOS. Because of the draft status of the Plan no information could be used. In Section 4 some aspects of the policy formation process will be discussed.

## 2.3 Policies Curaçao

**Island Ordinance on Area Planning (1983)**

An Island Ordinance on Area Planning has been established in 1983. The contents of the Ordinance are comparable to the Ordinance of Bonaire. The zoning plan for Curaçao (EOP) was established in 1995 (see further).

**Tourism Strategic Masterplan 1988 and Tourism Development Plan-TDP**

The Tourism Strategic Masterplan was established together with the Masterplans of all other Islands of the Netherlands Antilles. The study is largely outdated, only a brief summarized description of the Plan is given below (as far as relevant for forestry).

The overall objective of the Masterplan was to: *"set out a course of action for the next decade which, based on an assessment of the tourism product, and its potential for development, is considered appropriate to move smoothly towards a larger and more efficient tourism sector".*

The strategy for development involves a number of proposed institutional changes:

- the establishment of a new governmental Department for Tourism, (CDT) responsible for economic targets, policies etc;
- the establishment of a new (governmental) Tourism Development Corporation, CTDC (implementation, marketing, monitoring etc.).

Further, it is recommended that important landscapes and natural areas on the island be conserved to support tourism (roughly the West and East part of Curaçao). It is indicated in the plan where (larger) tourism projects can be located.

The Masterplan concludes with proposals for Technical Assistance and for Studies. For Technical Assistance a budget of app. MECU 5 was proposed for a period of three years (works excluded).

The Masterplan, together with the Masterplans of the other islands of the Netherlands Antilles, formed the basis for the Tourism Development Programme for the Netherlands Antilles. The TDP and the financing agreement with the EU that came along with it, made partial implementation of the Masterplan possible. The "Curaçao -part" of the TDP is described below.

**The Tourism Development Programme Curaçao-TDP (1991)**

The TDP is divided into four main areas of action: (1) technical assistance, (2) training, (3) marketing, promotion and information, and (4) product improvement. The total funding for the programme amounted to app. 8 MECU for Curaçao (of which 2.5 MECU for works). No substantial funding is allocated to forestry-related projects.

**Core Curriculum Nature- and Environmental Education-NME (June, 1995)**

In 1995 the Inter-departmental "Project Team Environment" assigned a working group to establish a Core curriculum Nature- and Environmental Education (NME) for schoolchildren of age 4-12. The working group consisted of an employee of the Department of Education of Curaçao, and educational experts of two NGOs (Carmabi/Stinapa and Amigu di Tera).

NME had been practised on a voluntary basis by Carmabi/Stinapa, but lack of policies and legislation led to uncertainties with respect to the continuity of NME. Another problem was the lack of structure in the education system needed to embed NME.

The objective of the Core Curriculum NME -which is based on Agenda 21- was to *"educate school-children about the relationship between man, nature and environment, and how they can contribute to a sustainable development"*.

The main objective has been further divided into six objectives:

1. Schoolchildren experience nature independently;
2. Schoolchildren acquire knowledge and insight in the components of nature and environment;
3. Schoolchildren acquire knowledge and insight in the relevance of nature and environment for man;
4. Schoolchildren acquire knowledge and insight in the impact of man on ecosystems and the environment;
5. Schoolchildren acquire knowledge and insight in local, regional and global environmental problems;
6. Schoolchildren acquire affection for nature and acquire knowledge, skills and attitudes that enable them to contribute to a responsible use of nature and environment.

The plan further gives an approach for the system of education and defines the minimum requirements (experiences, knowledge etc.) for the end of the school period.

The plan gives a number of recommendations for improving NME and embedding NME in the current system.

The plan concludes with a number of recommendations. One of the recommendations is to formally start a programme for nature excursions and outdoor courses under the responsibility of Carmabi/Stinapa.

The plan was approved by the Education Presidium (a platform of school boards, the Union of School Personnel and other Organizations for Education). Until now, however, the Minister of Education has not approved the plan. Despite this fact, the plan has had one important result, i.e. a budget for nature excursions. Especially the lobby of the Union was critical in realizing this budget. The budget was partly approved by the Executive Council in 1996; for 1997, the programme is formally on the budget of the Island Territory (US$125,000).

Currently 90 percent of the primary schools on Curaçao participate in the programme, which means that almost all children of age 6-12 participate in at least a first phase of NME. The results of the programme are monitored inter alia by following the participation of the school children and by testing them.

**Land Use Plan for Curaçao-EOP (August 1995)**

The Island Development Plan of Curaçao (EOP) is an elaborate Land Use Plan in which developments are projected for the next five years. The Plan originated at the Department of Area Planning and Public Housing (DROV). The intention of the Department was to gain more control over the fast developments on the island and the consequences for the living space including nature and landscape. The EOP will provide a basis for stability and continuity in the future.

The main objectives of the EOP are:

- the conservation of economic, cultural and natural values;
- the prevention of conflicts of interest and the limitation of costs for government for facilities and infrastructure;
- the development of Willemstad into an urban area where people can live comfortably and where possibilities for recreation exist.

These main objectives are worked out into a number of sub-objectives. As far as relevant for forestry these sub-objectives can be summarized as follows:

- the remaining "free" areas in the central part of the island will be used as efficiently as possible;
- the creation of recreation possibilities will be stimulated by creating park areas in the urban centre;
- conservation and restoration of nature.

This last sub-objective is further articulated and motivated: *"To protect important natural areas on the island, for many habitat-types conservation specific measures are included....Provided that a good management of nature is in place, nature forms an economically important resource."*

In the EOP the so-called concentration strategy is used as a guideline for development. This means that developments will be concentrated in the urban centre of the island. The countryside will be the complement of this urban area and will be kept free of large building projects so that natural functions will be strengthened. The strategy is worked out into the determination of a large number of "conservation-areas" (government and privately owned), especially on the West side and the East side of the Island. In addition "open land" areas (relevance for landscapes) and "park areas" are determined.

The EOP defines 12 zones that are indicated on two maps of the Island. For these zones, the EOP provides zoning-regulations and conditions which are based on the Island Ordinance on Area Planning Curaçao.

The Land Use Plan of Curaçao has been in effect since May 23, 1997. This means that the plan will be used by the Executive Council as a guideline for the judgement of developments and building requests.

For example, tourism, housing and large public projects implementation has to take place through the establishment of more detailed division plans. For these projects the financial consequences for the Island Government for the first four years of the plan period have been estimated. The need for capital investments has been adjusted to the available means (Island budget, Dutch development funds and European development funds). These estimations, however, are more an indication for the feasibility of the planned development than they are a guideline for investments.

For nature areas, the protection has a legal basis in the Land Use Plan and the Ordinance on area planning Curaçao. One remark has to be made however: The law provides a number of possibilities to deviate from the original plan. Because the Department has to deal with many requests for dispensation, no implementation in the sense of development control has taken place as yet. Furthermore, for a proper implementation the use of a GIS will be essential.

**A Masterplan for Tourism Development (November 1995)**

The Masterplan for Tourism Development (for short: Masterplan) is a policy plan for the physical development of tourism on Curaçao. Although choices have been made in the number of issues being dealt with, the plan is rather elaborate and gives quite a detailed vision on the development of six identified *"character zones"*.

The policy was initiated by the Curaçao Tourism Development Bureau with the intention to have a clear guideline for the planning of physical tourism developments. One of the important issues that had to be addressed was the issue of the carrying capacity of the different locations on the island. Related to this issue, the policy objective of the Masterplan is: *"To identify the development principles, implementation strategies and necessary actions to achieve sustainable growth in tourism development"* (source: Masterplan).

The main conservation objectives of the plan are (as far as relevant for forestry):

- to protect the landscape and ecology;
- to promote planting of trees and vegetation;
- to minimize visual and physical impacts of development on the environment;

- to increase environmental awareness through public education.

The content of the policy plan can be summarized as follows (as far as relevant for forestry): On the island six "character zones" have been identified: (1) City Centre, (2) and (3) Eastern and Western Core near the City, (4) The West, (5) The East and (6) The North. Tourism is projected to be most intensive in the City Centre and in the areas nearby. The East and West will "maintain their rich environmental reserves and natural features, where smaller developments could be allowed within an undisturbed natural environment (source: Masterplan).

Relevant policies are:

- **Policy 10**: "The Government and CTDB will encourage the diversification of the island's recreational activities.....including:..... sightseeing and touring on nature trails and paths and wildlife and nature education/observation".
- **Policy 16**: "The Government will, in conjunction with CTDB and Carmabi, introduce a policy which protects and conserves important features of the natural landscape, including woodland, plants and geological features, together with significant hills, freshwater lakes, saliñas, inland bay mangroves and coral reefs.
- **Policy 17**: "The Government will monitor the effects of tourism developments on Curaçao's flora and fauna and will introduce specific policies to protect endangered species.
- **Policy 18**: "The Government will create a National Park Authority (NP) incorporating both Christoffel Park and the Underwater Park as National Parks of Curaçao and enable the NPA to enforce environmental and marine legislation.
- **Policy 19**: "The Government will support the NPA and evaluate the role of National Parks, define boundaries (including possible extension of existing boundaries) and legislate for ongoing management and funding".

The formation process of the Masterplan is described in Section 4.

The vision presented in the Curaçao Masterplan is being implemented in a number of projects, on some occasions, the Government makes ad hoc decisions that are not in line with the plan. It was suggested that economic stagnation would be the reason for this (source: CTDB).

Initiation by the Island Territory of Curaçao of an action programme for economic recovery of the Netherlands Antilles.

## 2.4 Policies Saint Martin

### Outline Tourism Strategy 1988 and Tourism Development Plan-TDP

Compared to the other islands of the Netherlands Antilles, Saint Martin was much less involved in the preparation of a Tourism Masterplan and the Tourism Development Plan-TDP. In the Financing Agreement between the Netherlands Antilles and The European Commission, an amount of ECU 440,000 was reserved for Saint Martin, mainly for Technical Assistance (jointly with Saba and Statia), limited training and marketing and promotion.

### Island Ordinance on Area Planning (1993)

An Island Ordinance on Area Planning was established in 1993. The contents of the Ordinance are comparable to the Ordinance of Bonaire and Curaçao. No final zoning plan has been established as yet.

**The Multi Annual Policy Plan of Saint Martin (1995 and "post Luis" Draft 1997)**

A first outline of a Multi Annual Policy Plan (MAPP) was drafted in May 1995 ("New Perspectives": Socio Economic Conference"). The policy was developed against a background of uncontrolled social and economic developments on the island. In addition, administrative problems led to the introduction of the "higher supervision" by the Kingdom and the Central Government from 1992 to 1994 (source: Department of Development Cooperation, DepOS). In this situation, it was necessary to prepare an overall policy plan for the island (source: Strategic Policy Bureau, SBO).

The main objective of the first outline of MAPP was to create a: *"socio economic system that is characterized by long run stability and high quality, both of its social climate and environment as of its economy".*

Because of the hurricanes in September 1995, the outline of MAPP had to be re-evaluated in the light of immediate needs and an abbreviated MAPP was prepared in 1996. In October 1997, a new outline of the MAPP was presented. The mission (main objective) of this new MAPP can be summarized as: *"The improvement of the social and economic infrastructure of Saint Martin focussing on quality and whereby the population of Saint Martin can be offered a future that is characterized by continuous quality and sustained socio-economic growth".*

Because MAPP 1997 is partly based on the outline of 1995, some of the main elements of the Socio-Economic Conference are summarized here: Four main discussion areas were defined: (1) tourism, (2) economic diversification, (3) environment and infrastructure and (4) social and cultural development.

Within the theme of Tourism, the issue of establishing ecotourism was discussed. It was concluded that ecotourism would be no serious option for Saint Martin. Saint Martin has little chance in the competition with islands like Jamaica or other large islands. In addition, there are many problems that Saint Martin has to concentrate on (upgrading of facilities, clean up the island).

In the discussion about environment and infrastructure, erosion of the hills caused by developments and excavations was a main issue. Proposed actions were inter alia:

- regulation, limitation or prohibition of construction on the hillsides (including zoning regulations);
- put in place legislation and control;
- preserve flora and fauna;
- increase public awareness for the problems.

Over 300 people from Saint Martin and a few representatives from the Central and the Dutch Government participated in the Socio-Economic Conference and the workshops.

The MAPP of 1997 has a somewhat different approach. Forestry related issues are dealt with in the sections about "tourism" and "infrastructure/environment".

The main objective for the tourism sector is *"the revitalization and expansion of the product including improving the quality, attaining a base level of activity (managed growth) and enhancing the visitor experience".* For the enhancement of the product quality on Saint Martin it is essential to invest in the infrastructure of the island, the accommodations, the human resources, the island attractions and the environment. With respect to the latter, it is considered important to establish National Parks (like the area of Back Bay) and to create guest support facilities, such as parking areas, trails and visitor centres.

With respect to the quantity of tourism, Government will adopt a policy of managed and sustainable growth towards a basis level (pre-Luiz level) that supports economy sufficiently. In doing this, niche markets, e.g. for ecotourism, will also be developed. Finally, the carrying capacity of the island for tourism will be studied.

This policy-area will be elaborated further in a Tourism Action Plan that has to be drawn. This action plan will provide (1) a 10-year tourism management strategy, (2) applicable policies and (3) actions over the 10-year period.

The policy on infrastructure/environment can be summarized as follows: *"Government will create a leadership role for environmental protection as it relates improving the island experience by placing a reasonable value on the environment"*. It is stated that on an individual level, no one owns the environment and that individuals care more for an environment owned. For this, it is necessary to educate people to care for their environment.

Especially the Hillsides of Saint Martin, with their ecological values and rich biodiversity, have to be protected against further developments, by means of zoning policies. For important development projects, EIA has to be implemented. The 1997 MAPP is a draft policy, no formal approval has been given by the Executive Council, and no implementation has taken place as yet. Of the 1995 outline, however, a number of elements have been implemented. A policy for building in the hillsides is established and physically applied (see section: "The Hillside Policy").

For the future implementation of the MAPP a number of new organizations will play a role:

- The EDC (Economic Development Corporation) will be responsible for, inter alia, implementing economic policies and evaluation of developments including their environmental impacts;
- An independent Environmental Protection Committee will among others implement EIA and evaluate the conclusions of EIA.
- So-called DITs (District Improvement Teams) will be established and (among others): plant, maintain and replace street trees and contents of sidewalk planters.

**Policy Plan Nature Recovery Saint Martin (August 1996)**

The Multi Annual Policy Plan of 1995 recognizes the importance of nature protection on Saint Martin. As a follow up on MAPP, the Department of Public Housing, Area Planning and Environment (VROM) assigned a consultancy to establish an inventory on nature values and prepare proposals for conservation, as a basis for the future terrestrial and marine zoning plans for Saint Martin and for practical nature management.

Due to the destructive effects of hurricanes Luis and Marilyn in September 1995, nature values, priorities and policies had to be redefined. In the reconstruction phase after the hurricanes, the VROM Department was joined by an expert on nature policies from the Netherlands for six months to assist with this process.

The process resulted in a "Policy Plan for Nature Recovery Saint Martin and Action plan", based on several reports on the nature of Saint Martin (EcoVision and AIDEnvironment, 1995, 1996).

In a separate letter by the Head of VROM, it is indicated what the main policy objective (purpose) and the intention of the policy makers are: *"The purpose of the policy plan is that nature gets more value and acknowledgement in the decision and policy making process. It is a declaration of the intention of Your Council how to deal with decisions that have an impact on nature in the future"*.

In short the content of the policy can be described as follows. The Executive Council:

1. will give environment and nature a more prominent place in policy and decision making to ensure a sustainable development of Saint Martin
2. will stimulate the execution of environmental impact assessments with respect to large development projects;
3. will stimulate developers to invest in nature and landscaping;
4. will stimulate the development of a nature plan and the development of physical planning and environmental policy;
5. will stimulate the awareness and involvement of the public concerning environment and nature;
6. acknowledges that certain natural values are important for the sustainable development of the island.

A number of actions are proposed for the short term (within one year), some of which have relevance for forestry. In the first place mangrove recovery will be stimulated and monitored. For some ponds it is important that they will have a protected status on the short term, such as Red Pond and Oyster Pond (mangroves). It is proposed to establish building regulations for the hillsides on the very short term, with the purpose to limit building in the higher and the (visually) characteristic regions.

Actions with respect to forestry for the medium/long term are the formulation of a nature plan (as a building stone for the zoning plan), the preparation of the establishment of nature parks including parts of the hillsides and the preparation of an awareness campaign. Long term actions (to be implemented within five years) are among others: approval by the Executive and Island Councils of the nature plan and the zoning plan and the physical management of the nature parks.

The plan was approved by the Executive Council in August 1996. Certain elements of the policy - relevant for forestry- have been implemented: A new policy for building in the hillsides has been established, as well as a plan for nature parks (next sections). In addition, an information brochure on the natural values of Saint Martin is in its final stage of preparation.

The major constraints for implementation, such as in the case of the restoration of mangroves, are considered to be institutional capacity and financial means (Department of VROM and Public Works).

In the plan, linkages are indicated with other policy fields, especially with tourism. It is indicated that if the environment and natural resources on the island are included in the tourism product, this will result in an increased attractivity of the island.

**Hillsides Policy (1997)**

The green hills of Saint Martin are considered important assets for the island, both by the Government and the people of Saint Martin. This public attention was clearly demonstrated in the process of the establishment of MAPP in the beginning of 1995. In the resulting document "New Perspectives", it was concluded that regulations and limitations should be defined.

The policy was published as a Public Notice in the newspapers of Saint Martin (July 7th, 1997). The policy concerns all hillside and land located above the 50-m altitude line. In short, the Hillside Policy states that:

1. only residential development is allowed on the hillsides;
2. guidelines exist for lot sizes, maximum building percentages, building of roads etc.; the conditions differ depending on the slope of the location and the altitude;
3. no building should occur on hill tops, ridges, and above the 200 meter altitude line;
4. the Hillside Park is projected in the central hills;
5. certain visually important hills should be conserved.

The Policy will be used as a starting point for the future Zoning Plan of Saint Martin and will be used as a framework for judgement of subdivision plans and building permit requests.

The main objective of the Policy is to conserve the green hills, protect and restore their natural value for the benefit of the environment, the tourist industry and the quality of life on Saint Martin. Furthermore, the Policy will be used to control erosion and promote the quality of the marine environment.

The policy is not included in either one of the main policy categories described in Section 4. Therefore, a summary of the policy formation process will be given below:

The most important impulse for the policy was the MAPP process, in which the public pointed to the importance of the hills. By the end of 1995, the VROM Department asked a consultancy to draw up a first set of draft guidelines. A Technical Assistant from the Netherlands further elaborated the draft. The draft was sent to other Government Departments, but no reactions were received afterwards. By

the end of 1996, the guidelines were presented to the Executive Council. The policy was approved and published in July 1997.

Formally, the policy should be presented by the Executive Council to the Island Council. This has not been done so far. It is expected that the Island Council -which supports the Executive Council in this matter- will also approve the policy.

It was expected that a constraint to effectuation of the policy would be that large segments of the public would not support it, but no reactions from the public were received.

The policy will be used as an interim policy, the policy contents will be taken over in a Zoning Plan.

**Policy Plan on Nature Parks (October 1996)**

The Policy Plan on Nature Parks was initiated by the Department of Public Housing, Area Planning and Environment (VROM). The plan outlines the establishment of two planned parks within the Island territory of Saint Martin: a Hillside Park (app. 500 ha) and a Marine park (app. 2000 ha). The importance of these parks lies in the value of their nature and cultural history as well in their contribution to the tourist attractiveness of Saint Martin.

The objectives of the parks are, inter alia, protection, management, accessibility, education, information, promotion, tourism and sustainable development.

Steps will be undertaken to come bi-national parks through cooperation with the French Side. Organizations from other countries will be asked for support.

A Foundation will be established to manage the parks, after consulting the relevant parties involved (e.g. tourist sector, fishermen, diving schools, land owners, educational institutes).

Guidelines, which will prohibit building and road construction, should be approved by the Government.

The policy was prepared by the VROM Department with the help of a Technical Assistant from the Netherlands. The plan has not officially been presented to the Executive Council.

Partial implementation has led to the establishment of a Foundation ("Nature Foundation Saint Martin"). This Foundation first focuses on the management of the Marine Park and on the stimulation of awareness within the community. The establishment of the Hillside Park will be completed in a later stage. It is expected that a constraint for the realization of this park is the private ownership of most of the area (Nature Foundation).

**Government of Empowerment 1997**

Government of Empowerment is a coalition plan of the Island Government for the short term (1997-1999) which is meant to revitalize the economy of Saint Martin which experienced serious set-backs in the post Luis period.

The primary focus of the plan will be the following:

- the accelerated economic and social development of Saint Martin;
- the improvement and expansion of the infrastructure;
- the creation of jobs and economic opportunities;
- the promotion and fostering of economic growth.

A separate section is dedicated to "Housing, Physical Planning and Environment". In this section, it is stated that the further development of the island will take place in a planned manner, which is the only way to ensure a balanced development.

The importance of Saint Martin's natural environment will be stressed and in all developments, the greening of the community will be evident as parks and recreational areas will be established. Preservation is considered highly important, the Hilltop Policy being evidence of this approach. No physical implementation of the policy has taken place as yet.

## 2.5 Policies Statia

**Physical Development Plan for Saint Eustatius 1988**

A Physical Development Plan has been established by assignment of DepOS. Nowadays, the plan is largely outdated and has little significance. It will not be further commented on.

**Tourism Strategic Masterplan 1988**

The Tourism Strategic Masterplan is a demand study for upgrading of the tourist sector. It was established together with the Masterplans of all other Islands of the Netherlands Antilles. Because the study is largely outdated, only a summarized description of the Plan is given below.

The underlying objective of the Masterplan was to establish implementable strategies and mechanisms that will encourage the development of the tourism sector. This objective is further accentuated:

- to continue and intensify the conservation effort in order to ensure that the island's natural and historic attributes are preserved for the enjoyment of future generations, both resident and transient;
- within a policy of conservation, restoration and general product upgrading, seek to attract those groups of tourists which are likely to respect the culture of the island and to contribute to its economic and social well being.

The strategy for development is based on four main areas for action:

1. Planning and control, including physical planning. In this Masterplan an outline for such physical planning is given.
2. Preservation and restoration. The marine area as well as the Quill area should be declared National Parks, to be used as important elements in the tourism product and image.
3. Upgrading of tourist accommodation, facilities and infrastructure;
4. Tourism organization and marketing.

The Masterplan also describes possibilities of improving inter-sector linkages, mainly between the tourism sector and the agricultural sector. The agricultural sector could produce more consumable items for the tourism industry (good quality fruits, vegetables, eggs and meat) to prevent leakage of foreign exchange. The Department of Agriculture should take the lead and seek external funding and know-how, ideally from funding agencies including UNDP/FAO.

Short term proposed actions with relevance for forestry are:

- strengthening of the administration of the tourism sector;
- establish a physical planning framework for tourism (including development control and conservation of natural assets and monuments);
- seek funding for an extension to the current Tourism Promotional Programme;
- improve inter-sector linkages.

It was predicted that implementation of the Masterplan, including a development of the sector to the estimated potential of 200-250 hotel rooms, would lead to employment for 240-300 persons.

The Masterplan concludes with proposals for Technical Assistance and for Studies. For Technical Assistance, a budget of MECU 1.65 was proposed.

The Masterplan, together with the Masterplans of the other islands of the Netherlands Antilles, formed the basis for the Tourism Development Programme for the Netherlands Antilles. The TDP and the financing agreement with the EU that came along with it (paragraph 2.1.2), made partial implementation of the Masterplan possible. The "Saint Eustatius-part" of the TDP is described below.

**The Tourism Development Programme Saint Eustatius (1991)**

The TDP is divided into four main areas of action: (1) technical assistance, (2) training, (3) marketing, promotion and information and (4) product improvement.

The TDP for Statia contains no specific forestry related elements in either one of the areas. However, the role of a Tourism Advisor (a consultant), which was to restructure the Tourism Department and staffing and training of the personnel, is mentioned here. The Tourism Advisor was shared with Saba.

The TDP has been largely implemented with EU funding (app. 2 MECU for Saint Eustatius). Implementation was monitored by the Tourism Advisor, who was responsible for quarterly and bi-annual monitoring reports. An end-evaluation has been held at the end of the project in 1996.

**Tourism Policy Saint Eustatius 1995-1997**

The Tourism Policy was initiated by the Tourism Development Foundation of Statia. The Plan became definitive in 1994, when it was approved by the Executive Council. Unlike the TDP for Statia this plan is not.

The intention of the policy makers was to create a plan in which guidelines for tourism development on Statia were included. Development of tourism is considered important for the development of all other economic sectors on the island and will lead to more prosperity for the people of Saint Eustatius.

Based on these principles, the long-term general objective is to let the people of Statia benefit from the development of tourism (employment, revenues, improvement of quality of life). The tourism objectives are as follows:

- establish Statia as a history based ecotourism destination;
- attract individual and small group markets;
- increase the number of tourists;
- augment the average length of stay;
- stimulate repeat visits;
- enlarge tourism expenditure per capita;
- encourage locals to become property owners and operators;
- minimize disruptive effects of tourism (social, cultural, environmental etc.).

Proposals for the accomplishment of these objectives are described in the Plan, of which a selection is given below:

- the establishment of standards for all components of the tourism industry by Government (e.g. physical safety, quality of service, training, accommodation, transportation etc.). Businesses have to meet these standards in order to acquire a permit;
- to encourage Statians to invest in the tourism and hospitality industry;
- the Government will activate legislation for physical planning and the preparation of a Physical Development Plan. The Plan will encompass the development and preservation of National Parks (The Quill), marine parks, including the overall preservation of the island's natural flora and fauna.
- Government will carefully monitor the pace of development to avoid excess capacity;
- Saint Eustatius will be promoted as a rather unknown, hence untouched, ecotourism destination for active visitors that enjoy diving, hill walking, climbing and (natural) history.

- Government will support product development in line with the tourism policy. The development of the Quill as a nature park, scuba diving and heritage tourism are given highest priority;
- the development of a Tourism Training and Management Development Programme including training of Tourism Staff and awareness programmes for adults and children.

The Tourism Policy was prepared and produced by the Island Government (Department of Economic Affairs) and by the Saint Eustatius Tourism Development Foundation. No consultants were involved, nor have public hearings been held during the process.

Implementation of the policy plan is insufficient according to the Saint Eustatius Tourism Development Foundation, mainly because of insufficient financial means for development of ecotourism and local training.

Legislation for the Quill and local flora and fauna has been implemented by means of the Ordinance protection flora and fauna 1997 (described below).

**Development Strategy and Development Plan Saint Eustatius 1996-2000**

The Development Strategy for Saint Eustatius (1996) came about with funding from the Department of Development Cooperation of the Central Government (DepOS). The Plan formulates policy for the Island as a whole and for several sectors and issues in particular: These are: the oil storage activities; the island administration; human resources; social issues; public housing; public health; tourism; trade; distribution and transportation; agriculture, cattle breeding and fisheries.

The objective for the island as a whole is to become less dependent on administrative and financial aid from the Central Government, the Netherlands and other donors (European Union). A number of "sectoral" policies formulated in the Plan are briefly described below:

*The island administration*: The island administration on Statia is not functioning effectively, resulting in a long lasting dependency on development aid, the lagging behind of the tourism sector and the lack of sound water and electricity facilities.

*Proposed actions are*: (1) examine whether government tasks should be privatized or become more independent; (2) draw up policy for job evaluations, recruitment and selection, training and education, evaluation and adjustment of rating systems; and (3) draw up institutional policies for public services.

*Tourism*: The objective for the Tourism sector is: *"Upgrading of the tourist product intended for day tourism, yachts and cruise ships"*.. Proposed actions are: (1) stimulation of special interest day tourism and associated supporting facilities such as restaurants and shops; (2) conserving the historic heritage; and (3) intensifying the cooperation with surrounding islands, mainly Saba.

*NB*: No policy is formulated with respect to forestry in relation to tourism, like in the Tourism Policy of 1994 (above), nor is any reference made to this policy.

*Zoning and land tenure*: A zoning plan for the island of Statia should be officially approved by the Executive Council and be implemented.

*Agriculture, cattle breeding and fisheries*: The objective for this sector is "To become less dependent from imports". These activities should be stimulated to provide (extra) income for Statians. It is stated that special attention has to be given to the problem of freely grazing goats, which destroy natural vegetation and cause severe erosion.

The plan is drawn up by an Antillean consultancy. For the process of policy formation one is referred to Section 4.

For implementation of the Development Strategy budgets are estimated in the accompanying Action Programme. The Plan was approved by the Executive Council on May 28, 1997, but no implementation has taken place as yet. In 1997, a contract was signed with the same consultant to update the plan. A zoning plan for Statia has not been established as yet.

**Ordinance on protection of flora and fauna and Island Decree (1997)**

The Ordinance on protection of flora and fauna of Saint Eustatius and accompanying Decree were approved by the Island Council in December 1996 and have been in effect since March 21st 1997. The purpose of the Ordinance is to protect local flora and fauna, as well as unique and visually important natural landscapes.

In article 3 of the Ordinance, it is stated that it is not allowed to take (damage, collect, etc.) flora and fauna (to be appointed by separate Decree) in a way that these species are disturbed or destroyed. In article 6, it is stated that it is not allowed to change, damage or destroy unique and visually important natural landscapes.

The Ordinance is a legal framework; by the Decree of March 20th, 1997, protected flora, fauna and landscapes are identified: As protected flora are appointed: the "Statia Morning Glory" (Ipomoea sphenophylla) and 15 species of orchids. As protected landscapes are appointed: the outer slope of the volcano "The Quill" (250 meters altitude and higher) as well as the inner slopes of the craters; several areas ("Boven", "Venus" , "Gilboa Hill", Signal Hill", "Bergje"); the Cotton Tree in "Lower Town"; and the cliff in Lower Town.

**Ordinance on cattle registration (Draft)**

The Ordinance on cattle registration and the accompanying Decree are in the process of formation. Until now, four drafts have been produced.

The core of the regulation is to provide Government with an opportunity to identify the owners of cattle, so that in case of damage, claims can be addressed to these owners. In the Explanatory Note of the Ordinance, damage exists in various forms: car accidents, damage to gardens, risk for public health (pollution of drinking water), damage to nature, in particular, to young trees and the stems of mature trees and the risk for erosion.

It is not expected that the Ordinance will be put into effect by the Island Council soon, mainly because of approaching elections (National elections January 30th 1998).

## 2.6 Policies Saba

**Tourism Strategic Masterplan 1988**

Because the study is largely outdated, only a summarized description of the Plan is given below.

The underlying objective of the Masterplan was to establish implementable strategies and mechanisms that will encourage the development of the tourism sector. This objective is further accentuated:

- to increase occupancy in existing hotels;
- to extend the number of hotel rooms
- to ensure an equitable participation by Sabans in the development of their country.

The strategy for tourism development includes sufficient control to avoid major social dislocation and to prevent developments unsympathetic to the Saban environment.

Short term proposed actions with relevance for forestry are strengthening of the public sector by Technical Assistance with respect to:

- planning and controlling of the tourism sector;

- supporting the development of island guides (flora and fauna) and island handicraft;
- assisting the development of new legislation to control new construction, foreign ownership and other matters related to existing property;
- development of a marketing strategy for diving and "hide away" tourism and for multi-destination packages.

In the medium term, infrastructural developments should be given priority, as well as further marketing, and a continuation of product improvement (trails, seats, information centre, signposting etc.).

Implementation of the Masterplan would lead to full-time employment for 150 persons.

The Masterplan concludes with proposals for Technical Assistance and for Studies. For Technical Assistance a budget of MECU 2.485 was proposed (works not included).

The Masterplan, together with the Masterplans of the other islands of the Netherlands Antilles, formed the basis for the Tourism Development Programme for the Netherlands Antilles. The TDP and the financing agreement with the EU that came along with it (paragraph 2.1.2), made partial implementation of the Masterplan possible. The "Saba-part" of the TDP is described below.

**The Tourism Development Programme Saba-TDP (1991)**

The TDP is divided into four main areas of action: (1) technical assistance, (2) training, (3) marketing, promotion and information and (4) product improvement.

The TDP for Saba contains few forestry related elements. The TDP states that a handrail to the top of Mount Scenery will be provided for, as well as a lookout tower and signposting. Many aspects of the tourism development are related to the marine environment. The Tourism Advisor (a consultant), who is shared with Statia will be responsible for the guiding of these developments, as well as for training and marketing improvement.

The TDP has largely been implemented with EU funding (app. 5.1 MECU for Saba, including works: 4.7 MECU). Implementation was monitored by the Tourism Advisor, who was responsible for quarterly and bi-annual monitoring reports. An end-evaluation was held at the end of the project in 1996.

**Strategic Development Plan of Saba, 1996-2000**

The Strategic Development Plan of Saba, 1996-2000 is meant to set guidelines and priorities for the development of Saba. Future development aid for Saba should be allocated in accordance with these priorities and guidelines. The Plan has been drawn up by a Curaçao consultancy and guided by DepOS, which also provided for the funding.

The main objective of the Development Plan is: *"To create a higher standard of living and well being for the people of Saba while preserving Saba's unique characteristics and nature".*

This objective is further articulated: (1) realise a strengthened economic base, (2) maintain Saba's identity and the environment, (3) increased prosperity and social well being, (4) human resource development, (5) better governance, and (6) increased financial independence.

For the year 2000, a forecast has been developed which opens as follows:

> *"Arriving at Saba by air, the island still looks green and beautiful as always. The natural park has been opened and has already received a satisfactory number of visitors.....*
>
> *... The impression one has of Saba while driving through the villages is much the same as in 1995, not much has changed. The increase in population has been quite moderate in the last 5 years due to a restrictive immigration policy. The only visible changes are to be found in the newly constructed houses, which are perfectly fitted into the scenery: a little bit larger than they*

*used to be, but with the same architectural characteristics of a traditional Saban house, thanks to the zoning and building Ordinance which came into effect in 1996.*

*Due to the drought and hurricane Luis the damage to the soil because of erosion became more clear to Saba. The first step to fight the erosion was to get rid of the goats. All the goats that walked freely were bought by the government. Owners are only allowed to keep goats on their own property.....*

*..... In 1996 a new tourism policy was introduced. The policy focused strongly on the further development of ecotourism. Therefore national parks were established and walking trails were made.....*

*Sabans have learned how to cultivate in a modern way and a variety of vegetables and fruits are cultivated, enough to supply the Saban market and export to Saint Martin. The horticulture is for a large part done by people in their spare time but with assistance, now in a more professional way.....*

*... In the island government big changes have taken place. The government has been transformed in a slimmed down and efficient organization... Due to the reorganization some civil servants had to leave and find a job elsewhere;.... Thanks to the steady growth in the private sector, especially the tourism sector, most of them found work there...*

*... Further increase of income was possible by the introduction of taxes for use of public services... (e.g. entrance fee for the park and use of the trails and picnic areas)....."*

The section of the plan which is most related to forestry is the part "Maintain Saba's identity and environment". In this section a number of forestry related measures are proposed:

- implementation of regulations for building;
- introduction of zoning laws, which has to take place carefully because 95 percent of the land is privately owned;
- development of a broad physical Masterplan which addresses the locations for housing, tourism, nature etc.;
- setting limits to economic development;
- preservation of cultural heritage;
- cultivation of herbs and plants that were used for medical purposes in a botanical garden;
- designation of at least three parks: Mount Scenery (600m and higher), the area near the sulphur mines and Spring Bay area;
- development of new trails;
- removal of freely grazing goats and planting of quick growing grass to stop erosion.

The costs of implementation of the Development Plan of Saba amount to 50 million NAF (US$28 million) over five years. Inherent to the implementation of the plan an extra income for the Island Territory, is generated of app. 8 million NAF (US$4.4 million) in this period. Financing will take place by KabNA, European Union (European Development Fund), the Central Government and NGOs. According to the Development Plan, part of the projects, such as the zoning plan for the island, could also be funded by the Tourism Development Programme-TDP.

The Plan was approved by the Executive Council on March 11, 1996. Implementation is in its first phase, no concrete results have been established yet. Implementation in the future will affect a large segment of the Saban population.

**Saba Integrated Tourism Development Master Plan (1997)**

The Saba Tourism Development Master Plan was financed by the Commission of the European Union.

In the Introduction of the Master Plan, it is stated that there is a strong consensus on the island in terms of the direction for tourism development, broadly reflecting also the views of the recently completed Strategic Development Plan of Saba 1996-2000.

The strategic objective of the Integrated Tourism Development Masterplan is *"to help create a higher standard of living and well being for the people of Saba through the development of the tourism sector on a sustainable basis, protecting and nurturing the natural, social and cultural environment for future generations"*.

Because of the unique natural environment, the limited carrying capacity and the known market potential that exists for tourist destination of high environmental integrity, the tourism sector needs to focus on the following policy orientation:

- balanced growth within the island's carrying capacities;
- introducing more control, especially to protect the natural (but also the built) environment;
- favour small scale family owned tourism establishments which can make best use of limited labour resources available.

To maximize the benefits to the economy, policy should be directed to measures which:

- encourage Saban participation in the tourism sector;
- diversify the tourism product (longer lengths of stay, increased spending);
- encourage linkages to other sectors, such as agriculture and handicrafts;
- secure an appropriate balance between day trippers versus stay over tourists who spend ten times as much;
- minimize seasonality;
- ensure that the tourism sector makes appropriate contributions to the Island Government revenues.

The market positioning strategy states that: *"policy should be to position the island as an up market nature based destination with impeccable environmental credentials, determined to stay within its limited carrying capacity, and prioritizing sustainable tourism practices"*.

An action programme has been developed of which a number of actions are significant with respect to forestry:

*Carrying capacity*: Balanced growth should be achieved by defining the carrying capacities for tourism. A limit of one cruise ship a day (max. 200 passengers) is recommended. Not more than 100 day-trippers should be planned for. For stay over tourists, a limit of 200 rooms is recommended. Monitoring should be carried out.

*Zoning*: The instrument of zoning is recommended to control development. With respect to the proposed zoning regulations five types of land use are suggested (Nature Tourism Areas, Cultural Tourism Areas, Rural Areas, Village Development and Village Conservation Areas, Marine Area). In addition a proposal for physical zoning based on this division is given for Saba. It is proposed that no new developments should be permitted outside so-called "Village Development zones".

*Botanical Garden*: A botanical garden is part of the product development.

*Nature policy plan*: A Nature Policy Plan should be prepared.

*Development Guidelines*: Guidelines for development should be prepared and implemented. In the annex of the Masterplan a proposal for development guidelines is given.

*Environmental Impact Assessment*: Legislation for EIA should be prepared and implemented. In the annex of the Masterplan a proposal for EIA is given.

*World Heritage status:* Once zoning and conservation principles have been applied, initiatives might be taken to achieve the World Heritage Site status, covering the marine and terrestrial natural environment, villages, buildings and heritage sites.

*Trail system*: In the appendix of the Masterplan a proposal for a new trail system is given.

*Landscape improvement programme*: Tree planting and goat management are necessary to combat erosion.

The Masterplan concludes with a complete chapter on "Implementation". In the Implementation checklist, the responsible institutions and departments are defined. For most of the action points estimated budgets are given.

Much of the implementation can start being put into action immediately. However, because of the resulting workload, prioritization is desirable. Activities with long time frames (such as financing procedures) should be started first. Other measures of high priority are: the implementation of planning regulations and monitoring of the carrying capacity.

Implementation has not yet taken place, except for the Nature Policy Plan, which is in its final stage of preparation. The Building Ordinance by which also environmental protection measures can be required has been ready in draft form for four years now. It is expected that the Ordinance will not be in effect very soon, partly also because of approaching elections (National elections January 30th 1998). A serious constraint of introducing new legislation on a small island, is that new legislation immediately leads to a need for control and enforcement, for which the resources are not in place in most cases (source: Saba Conservation Foundation).

The plan has not yet been approved by the Executive Council of the Island (source: DepOS). A request for financing by DepOS has been submitted to the EU for implementation of the following elements:

1. Technical Assistance for the drafting and implementation of a Building Ordinance;
2. Technical Assistance for the drafting and implementation of zoning regulations;
3. The establishment and management of a revolving fund for repair and conservation of typical Saban buildings;
4. Other input (development guidelines, landscape improvement programme, other).

The request amounts ECU 754,000 (of which Technical Assistance: 244,000).

**Nature policy plan Saba**

The Nature Policy Plan of Saba is in preparation at the moment. Although the plan is not publicly available yet, the VOMIL Department explained that the approach and the preparation method are identical to the NPP of Bonaire.

## 2.7 Policies Aruba

### *2.7.1 International Conventions and Declarations*

For Aruba, the same international Conventions and Declarations are relevant as for the Netherlands Antilles, for which one is referred to in section 2.1.1. A few additional remarks, however, have to be made:

1. Aruba ratified the CITES Convention in 1995;
2. Aruba presented the Spanish Lagoon (a wetland with important mangrove stands) to the Ramsar Convention.

## 2.7.2 National policies

**Acuerdo di San Nicolas (1994)**

The "Acuerdo di San Nicolas" is a coalition agreement presented by the new government in 1994. The plan presents a general desired state of affairs and can be referred to as a Policy Statement.

Although the government has been under resignation since September 1997, the plan is considered important for the recent development of policies in general, including forestry related matter. The policy plan deals with several forestry-related fields, including economy, the environment and land use.

With respect to these areas the policy content can be described as follows.

With respect to the environment and land use planning, the government wishes to form the basis for a sustainable development of the island, in which economical development goes hand in hand with attention for the physical environment. It is recognized that policy concerning conservation and protection of nature is insufficient, as well as the legal instruments. Stimulation of environmental public awareness is considered essential in this process and the government will strive to work more closely with the relevant NGOs.

This general objective will be worked out as follows:

1. Integral policy plans concerning the environment and land use planning will be formulated and executed.
2. The responsible Departments will be sufficiently equipped and their capacity will be optimally enlarged. Databases and GIS's will be set up and will have to be accessible to all Departments.
3. Legislation on environment, nature protection and land use planning will be formulated, while more attention will be paid to the control of this legislation.
4. The Government will strive to protect a large part of the island by designing these areas (marine and terrestrial) as national parks. Special attention will be given to the following areas:
   * the Bubali Wetland, a wetland with many trees and birds;
   * the Arikok area (32 $km^2$, 17 percent of the island surface) with many natural and cultural assets;
   * Spanish Lagoon, an important mangrove area and Ramsar site.

The policy makers' overall intention was to secure the well being of future generations' demands of good government and intelligent and structured environmental management.

In addition, the aim was to bring openness to the public regarding public administration and to strengthen confidence of the public in politics. This intention will partly be worked out in specific plans. The policy plan is a reaction to a growing realization of the lack of policy and the consequences hereof, i.e. the deterioration of the environment in different aspects.

Strategic elements in the approach are the intended cooperation with NGOs e.g. in realising an extensive information and awareness campaign- and the intended active association with regional organizations.

Implementation of the policy is reflected in several recent reports and accomplishments. In particular, a Nature Policy Plan has been drawn, the capacity of the Department of Public Housing, Land Use Planning and Environment has been strengthened, while the realization of a GIS system within this Department is in full process. Furthermore, the implementation of the National Ordinance on nature conservation has become a fact (see below).

### National Ordinance on nature conservation

With the establishment of the National Ordinance in 1995, one of the preconditions for the ratification of the CITES Convention (also in 1995) was fulfilled. Compliance to CITES, however, was not the only objective; at the same time, a legal basis for the implementation of the SPAW Protocol was provided.

The Ordinance puts a ban on international trade in endangered species, and forms a legal basis for species and area protection. The Ordinance further states that a Commission for Flora and Fauna will be installed by the Government, which actually has been done (see below).

The Ordinance is a result of cooperation between several Governmental Departments: Agriculture and Fisheries, Public Housing, Land use Planning and Environment and the Legal Service. For the procedure of legislation, one is referred to in section 6.

Implementation of the Ordinance has resulted in the installation of the Commission Flora and Fauna at the beginning of 1996. This commission gives advice on nature management when asked and also on its own initiative. The commission is a non-governmental council, the secretary of the commission, however, is a government employee (Department of Public Housing, Land use Planning and Environment, = VROM Department).

The scope of the Ordinance is not only local. By complying to the SPAW Protocol, a contribution can be made to the protection of relevant marine areas in the Caribbean (e.g. mangrove forests).

### Policy plan on nature and landscapes (1996)

This policy document (issued in May 1996) was initiated and drawn up by the VROM Department and the Agriculture Department. The document is a typical product of cooperation between government and NGOs and does not only give an expression of the desired state of nature and landscape on Aruba, but also works out the problems that have to be solved and issues that have to be addressed. The plan is based on an elaborate set of studies carried out by Government, NGOs, students and scientists. Therefore, the document could be seen as a hybrid of a Policy Statement and a specific proposal.

The intention of the policy maker can be derived from the accompanying letter of the Head of the VROM Department, (summarized): The protection and management of valuable natural areas and landscapes contribute to the well being of citizens and promote tourism.

The document starts by defining the problems, issues and developments in marine, coastal and terrestrial areas on Aruba. Diminishing species and biodiversity and degradation of natural areas and landscapes are presented as the most concerning. Fragmentation of natural areas, housing projects, limestone quarries and erosion-processes are pointed at as main causes.

For important natural areas, the ecological values are described, as well as their threats. Subsequently, recommendations are given for the zoning, the development and the management of the areas. Relevant recommendations regarding forestry can be summarized as follows.

*Parks*

- Legal protection of Arikok, Bubali Wetland and Spanish Lagoon and designation of these areas as National Parks open for sustainable recreational use;

*Other areas*

- Landscape development and reforestation in buffer zones and (degraded) agricultural areas, "green" zones and wooded stands in urban areas;
- Reforestation only after sufficient preparation;
- Regulations on tree cutting;

- Limitation of goats' grazing to property of stock farmer;
- More research and education focused on local flora and fauna;
- Prohibition of use of pesticides in mangrove areas;

*Institutional and legal*

- Installation of a sub-department of Nature and Landscape protection;
- Installation of the Commission flora and fauna (National Ordinance)
- Cooperation of VROM and LVV Departments with local organizations (Tourism Department and NGOs) and international organizations;
- Establishment of an Ordinance on area planning.

These recommendations are not presented as clear objectives to be realized within a certain time frame.

The initiative for the policy was taken by the VROM Department just after the introduction of the National Ordinance on Nature Protection, in the beginning of 1995. It was agreed that this new Ordinance would be given more meaning by formulating new policies. The process of policy formation is further described in section 4.

Until now, only parts of the plan have been implemented. A sub-department for nature and landscape protection has been installed (LVV). Work on an Ordinance on area planning and a Zoning Plan for Aruba is in full progress. Besides that, the Government of Aruba recently assigned a legal consultant to prepare the designation of the Arikok area and the Spanish Lagoon as protected parks in the sense of the Ordinance. This consultant prepares park regulations for Arikok, as well as a list of protected species.

Constraints to be expected were not presented in the policy plan. After making inquiries at the VROM Department, the following constraints to the implementation could be identified:

- Politicians are not used to land use planning, which is a new phenomenon in the political arena;
- Legislation depends on the availability of the scarce, experienced legal experts; therefore, the process takes much time;
- The limitations to tourism and housing lead to negative reactions sometimes. Because the Ordinance on area planning is not in effect yet, there is no powerful instrument to regulate.

**Arikok National Park Initiatives (Masterplan, 1997)**

The Government of Aruba, through the Commission for Arikok National Park, in conjunction with citizens of Aruba and community organizations drew up a Masterplan for the proposed National Park. The plan is available on Internet (http://www. arubanationalparks.com).

The plan aims at the designation and protection of the Arikok National Park Aruba and the development of parts of the park for (controlled) tourism. The objectives formulated in the plan are the following:

- to maintain a unique part of Aruba's natural and cultural landscape
- to keep, stabilize and restore vital populations of native flora and fauna
- to develop environmental education opportunities
- to develop recreational and tourism amenities in the park.

The long term vision for the park is to define, develop and manage the resources of the Arikok National Park for present and future generations of inhabitants and visitors, in which preservation of natural, historic and cultural values is essential.

This policy was formulated bearing in mind a number of problems and issues that had to be addressed. In the first place, more control is needed over the use of the area. Especially the herding of goats causes major damage to the vegetation, which in turn causes severe erosion. Limestone

quarries form an environmental threat (dust) as well as a disturbance in the landscape. Finally, the access of vehicles has to be controlled. Another problem that has to be solved is the ownership situation within the park. Several areas within the proposed park are in private hands.

The plan works out the activities needed to realize the goals and concludes with a budget for the plan. For phase 1 (construction and administration) US$5,4 million are needed. For phase 2 (including property acquisition, quarry closure and restoration) an additional US$3,7 million are needed. For the rehabilitation of the adjacent Spanish Lagoon (Ramsar site; not part of the Arikok Park) another US$250,000 are needed.

The policy is partly based on a plan of a consultancy (Sasaki plan), which was however amended by the Commission for Arikok National Park. This Commission was formed by employees of the Government. In addition, a number of NGOs and island citizens were consulted and involved.

The implementation of the plan is in process. Government has recently installed a Project bureau for the management of the Arikok National Park in which five government employees are placed. It is the intention to transform this bureau into a Foundation in a later stage. The bureau has recently been provided with its own office, four- wheel-drive cars and pickups, and other facilities. For this bureau, US$280,000 was made available in 1997. In addition, the Government of Aruba has reserved a part of the necessary funds for the National Park: US$3,9 million (7 million guilders) of the US$9,4 million (17 million guilders). This was confirmed by the Minister of Economic Affairs and Tourism.

The Project bureau will cooperate closely with the Aruba Tourism Authority and the sub-department Nature and Landscape protection (LVV). The latter gives technical support to the Project bureau.

The implementation of the policy will have an effect on both visitors and island inhabitants who are confronted with park regulations and restricted use of the area. Landowners will be confronted with restricted use-possibilities or even -when the National Ordinance on Land use Planning is in effect- expropriation (VROM).

The policy clearly contributes to the policy of improving the tourism product (also described in the "Acuerde de San Nicolas"), by, among others, creating more facilities for recreation for visitors.

**Land use plan (draft)**

The Land use Plan of Aruba is a draft plan, which is not yet available to the public.

# 3. EMERGING AND CURRENT ISSUES AND PROBLEMS

## 3.1 Issues Netherlands Antilles and Aruba

### *1. Protection and management of large nature areas (perspective Antillean Government)*

According to the Department of Public Health of the Netherlands Antilles, one important issue affecting all islands is the situation concerning large (often privately owned) areas. These areas often represent an important ecological value and an economical value for the owner -e.g. for building purposes- as well. Examples of important areas are the Hillsides (Saint Martin), Mount Scenery (Saba), the Quill (Statia), Klein Bonaire (Bonaire) and Oostpunt (Curaçao). In practically all situations (except for the Upper Quill) legal protection and management concepts are lacking.

For generations the landowners have been free to use their lands for their own purposes. With various stages of development of area planning on the islands, these stakeholders see themselves confronted with serious limitations. In number, these stakeholders are not a large group, but they are certainly

influential and this group is getting more and more organized (e.g. on Curaçao). On the other hand, the NGOs organize themselves for the purpose of protection and acquisition of these important areas. In 1996, a new Antillean Foundation (STAAN) was established for this purpose.

The role of Government is not always clear. On almost all islands the ecological and esthetical value of the areas has been emphasized in policy plans, but, on the other hand, the islands are confronted with stagnating economies and new projects (e.g. tourism) are often welcomed by the Government.

For the acquisition of the areas, large sums would be needed. Although the value of the areas depends on the designation formulated by the Island Governments, the cost will still be too much for acquisition by the Island Governments. Alternatives for acquisition have not been evaluated yet. It is considered to approach WNF for funds to start a study regarding different management concepts.

The issue outlined here is often described in the newspapers, especially on Curaçao, where the process of land use planning is in its final stage. On Curaçao, the issue is a major political item. This year (1997) a political party was established that has the disabling of the land use plan for Curaçao as one of its major programme elements (Amigoe, November 1997).

On Aruba, where 90 percent of the island surface is Government property, the issue is less urgent.

On most Antillean Islands the issue is being -or will be- dealt with by means of land use planning, a responsibility of the planning offices. According to the development plans for the islands, these land use plans are given high priority.

The cost of acting on the issue is not clearly identified, however from experience on Curaçao, it is known that the process of establishing a land use plan and the legal procedures are very time consuming and costly (often external legal advice is needed, see section 6).

## 2. *Lack of land use planning (perspective NGOs Bonaire)*

In September 1996, the environmental NGO "Amigu di Tera Bonaire" directed several press statements to Papiamentu and Dutch language newspapers, in which serious concerns towards fast growing developments on Bonaire were expressed. It was found particularly concerning that developments occur in an uncontrolled way without any attention for the indigenous vegetation. Where this vegetation is cleared, imported plants are usually planted, which need large quantities of water and bring the risk of new plant diseases. Amigu di Tera signals that the friendly character and beautiful nature of the island, which have always brought visitors to the island, are in danger.

It is stated that developments on Bonaire should be carefully planned, restricted to certain areas, controlled and slowed down. The latter aspect was also agreed to on a multidisciplinary mini top on Bonaire earlier in 1996. Also, the Pourier report (1992) underlines the importance of the establishment of land use planning and legislation to support land use planning.

The foundation for nature management Stinapa also stresses the importance of having more control over developments, but the organization also sees some positive changes: some private housing project developers leave the original vegetation, which lowers the cost of the project. Often the new inhabitants choose to sustain the original drought resistant vegetation for practical reasons (Stinapa sees this as a trend). Also, Stinapa refers to a project where a severely damaged hillside is restored in a public-private project. At this hillside terraces are created where local drought resistant plants and trees are planted.

In the issue about land use planning, the stakeholders are not yet clearly identified. From other Antillean islands (especially Curaçao) it is known that a conflict between landowners, NGOs and Government could be expected. An important difference with the situation on Curaçao is that on Bonaire app. 70 percent of the total area is government property, which will reduce conflict situations. For private areas, however, some problems are still expected (Department of Area Planning and Public Works, DROB). On Bonaire, people are not used to a government that dictates what can be done with a private area and what cannot. It is expected that from the side of the landowners protests will be heard at the moment the land use plan will be issued (see also § 2.2).

The Department of Area Planning and Public Works (DROB) needs two employees for setting up an area planning office, and the installation and management of databases and GIS. The estimated costs are app. $ 150,000-200,000 a year. It is particularly difficult to attract (preferably Antillean) planning officers (source: DROB).

In 1994 and 1995, there was a lot of political interest in the issue. At that time also the Ordinance on area planning was issued (1995). Although on Department level high priority is given to the matter, the political attention has weakened in the last few years (source: DROB).

## 3. Landscape degradation (perspective Government and NGOs Aruba)

According to the Department of Public Housing, Area Planning and Environment (VROM) of Aruba, the public sees two main issues with respect to environment and land use: landscape degradation and littering. This opinion, which does not have a quantitative basis, is based on incoming complaints, NGOs' reactions and information from newspapers. This finding is confirmed by the NGOs. Stimaruba (an environmental NGO) especially mentions quarry management and the issue of free grazing goats in relation to the issue of landscape degradation.

*Goats*: According to Stimaruba -an environmental action group- and the Department of Agriculture (LVV), the extensive grazing of goats forms a limiting factor for the growth and rejuvenation of the local vegetation. The causal relationships are clearly indicated by Debrot and De Freitas, (1993) and Hoogeslag (1995). This situation makes reforestation without permanent protection difficult. The issue has been described in newspapers many times. In addition, Stimaruba distributes a paper in which the subject is frequently described.

It is assumed that only five stock farmers are dependent on their stock (Stimaruba). Most of the goats however are owned by people who are not dependent but have this as a side-activity. Therefore, in the opinion of Stimaruba the stakeholders do not form an important group from a social, economical or political point of view.

Stimaruba wants all goats removed from the natural areas. In fact, this is also the proposal taken up in the Structuurnota, in which the policy of LVV is also included: only grazing on private lands would be allowed. This policy, however, has not yet been implemented (see section 2.7).

No option or quantitative analysis of the issue is available, nor an analysis of costs and benefits involved. Although the costs for the affected groups (stock farmers) are not exactly known, it is clear that their costs are built-up by the costs for fencing, and for a more intensive way of farming: foddering, watering, more know-how is necessary.

LVV is giving relatively high priority to the issue. In fact, the Department is busy on working out incentives (personal and/or financial assistance). Also LVV plans to buy up cattle and sell the meat. It is expected that this will be a process over years, however, in the park areas goats will be excluded more strictly.

A comparable situation with goats' grazing exists on Statia, where the effects are even more striking.

*Quarries*: On Aruba, five limestone and "diabaas" quarries are present, most of which are at the borders of the Arikok park area. These quarries cause major landscape degradation according to Stimaruba and LVV. The Department of Economic Affairs also pays attention to the issue (§ 2.7). In the past, excavation-permits have been granted to private companies. Their permits allowed them to exploit a certain area, the borders of which are -in almost all cases- largely exceeded. Stimaruba states that the proof for this is simple to give, because the activities proceed outside the original lots. According to Stimaruba, the lack of legislation (for implementation of land use planning) is also a part of the issue.

The subject has been raised in the newspapers on Aruba and even on the Internet. The LVV Department gives much information in different media. The Departments of Economic Affairs (of which LVV is part) and VROM are responsible for the control of the quarries.

The parties in the "conflict" are the exploiting companies on the one hand and environmental organizations and citizens who experience hindrance from noise and dust on the other hand.

The companies form a strong economical and political power. However, it is expected that the effects on the environment can be largely reduced with the application of proper environmental standards (LVV Department). Other suggestions offered are: phasing out of quarries (Department of Economic Affairs), removing of quarries, filling the quarries with construction waste (Stimaruba).

No analysis has been carried out, nor is it known what costs are involved in finding alternatives for the current situation.

### *4. Goats in Saint Eustatius*

The free-grazing goats form the main issue on Statia. Stenapa is the organization constantly raising this issue. Opposed to the environmental organization are the goat-owners. The Government plays an intermediary role. The Ordinance on Cattle Registration (draft) is a step towards the solution of the problem, but according to Stenapa too little is done to solve the goat-problem.

### *5. Palu di Lechi and Pink Mealybug*

Palu di Lechi is an atypical problem on the Leeward Islands. The environmental organization Aamigu di Tera organizes special work-programmes to control the problem.

The Pink Mealybug is rapidly spreading on Curaçao (but on other islands including the Windward as well). It is feared that the pest will affect nature areas as well (Department of LVV).

## 4. PROCESSES AND MECHANISMS OF POLICY FORMATION

Although the approach per island is somewhat different, roughly four types of forestry related policies can be identified in the Netherlands Antilles and Aruba:

1. Development policies
2. Nature policies
3. Policies for nature based tourism
4. Land use policies

In the following sections, attention will be given to the processes and mechanisms of policy formation instead of describing the "physical" aspects of the policies.

Examples of questions answered in these sections are:

- What are the issues that are selected and addressed? (section 2)
- How and on the basis of what criteria are the issues selected? (section 4)
- What is the policy objective? (section 2)
- How are objectives set and prioritized? (section 4)
- What are the results of implementation? (section 2)
- How are provisions and guarantees for implementation included? (section 4)
- What are the constraints from implementation? (section 2)
- Are provisions made to address the constraints in advance? (section 4)

## 4.1 Development policies

### Introduction

The Strategic Development Plans for Saba, Statia and Bonaire came about with funding from the Department of Development Cooperation of the Central Government (DepOS). The terms of reference for the projects carried out by consultancies were also drafted by this Department in agreement with the Island Governments. In this way, DepOS has had an important influence on the process of the formation of the development policies. For the remainder, DepOS played a facilitating, intermediary role, the islands themselves giving direction to the contents of the policy.

On Saint Martin, the whole development plan (Multi Annual Policy Plan, MAPP) is financed by the Island Government itself and there was little interference by DepOS. Curaçao and Aruba do not have a development plan of their own, but initiatives for Curaçao have started (source: DepOS).

The description of the phases of policy formation below is partly based on the development plans themselves and on comments from responsible government officials (mainly DepOS).

### Issue search and agenda setting

A precondition for development aid by external funds (European Union, The Netherlands) is the preparation of a development plan combined with a financial plan. In general, the islands are responsible for their own development choices.

In the process, a bottom up approach is chosen in which all interested citizens, organizations and (representatives of) sectors participate. Through a series of workshops and interviews, the people can give their input and bring forward issues. Also, the choice of issues to be handled in the development plans is often made on the basis of these workshops (Saba, Saint Eustatius). On most islands, the main issue that had to be addressed was the fast (sometimes uncontrolled) rate of development, leading to ecological damage and possible social instability.

### Deciding how to decide

On all islands, consultants were assigned to assist in the process of policy preparation, mainly issue choice, option formulation and option analysis. Within the Government structure, the plans were broadly discussed with and within the relevant Departments. Especially the role of the Finance Departments has to be mentioned (see "Implementation").

### Issue definition

On most islands, an abundance of strategic data was present at the Economic Departments and the Tourism Authorities (Bonaire and Saba). This was not the case on Saint Martin where mainly data concerning the economy and tourism were lacking. On Saint Martin the consultant was assigned to collect and process these strategic data, whereas on the other islands an inventory of these data was considered adequate.

### Forecasting

In the Structure Plan for Bonaire a quantitative forecasting was made for the future situation that would develop without Government intervention. In addition, this Plan gives a number of possible development scenarios, based on different rates of tourism growth.

For Saba and Statia one selected future was described (with a plan horizon of five years), which was based on a striking consensus among the population and stakeholders.

### Setting objectives and priorities

The process on Saba started with the definition of a general main objective. During a public workshop this common goal was further elaborated so that six detailed objectives with high priority resulted.

### Option analysis

In a separate workshop on Saba, three scenarios (qualitative not quantitative) were presented to the public and discussed. The scenarios concerned mainly the rate of government involvement. On Saba and Statia, the choice between these scenarios was made by the public and stakeholders by consensus. No decision making by the Executive Council was involved in that stage. The Executive Council and the Island Council were offered only one scenario for formal approval.

To realise this scenario a complete project list was proposed by the project-organization. A constraint to the execution of these projects however, was that insufficient financial means were available, so that a further prioritization of projects had to be made. Priorities were set in open discussions in a final series of workshops. All selected projects were well defined and can be monitored for their success.

On Saint Eustatius and Bonaire, a comparable line was followed. On Saint Martin, however, it was found difficult to make choices between scenarios and options because of the lack of consensus.

### Implementation, monitoring, control

On the island of Saba, a detailed list of priority projects to be carried out in the plan period, was designed. The main implementation instruments are: legislation and the budget for projects (totalling US$23 million).

The financial consequences of the projects are clearly mapped. During the plan period, so-called Year plans, consisting of projects for the next year, are drafted. The financial consequences of these projects are included in the official budget of the Island Territory (starting from 1996). On Saint Eustatius and Bonaire the same approach is followed.

Where earlier strategic plans (like the Structure Plan on Bonaire) stayed unimplemented because of insufficient financial means, the later generation of development plans were thoroughly evaluated with the Island Finance Departments and the Central Government to guarantee adequate financing of the plan. The sources for financing are: KabNA, the European Development Fund, the Central Government and several NGOs. These institutions have been consulted during the preparation period.

Monitoring and control of the implementation will be carried out by a special Planning Committee, a team consisting of the Head of the Finance Department, the Head of Public Works and the Island Secretary. In this phase it has been recognized, however, that much needs to be done by few people, which is considered a serious constraint (DepOS).

### Evaluation and impact on policy

In the Strategic Development Plan for Saba, the mechanism of plan-evaluation is described as follows: *"Before the end of each year, the government and private sector of Saba, should elaborate the projects, taking into consideration the financial, human and spatial consequences for the period 1997-2000. Based on the conclusions from the evaluation the plan will be adjusted for the next five years. In this way the Strategic Development Plan will not be a static plan but a dynamic or rolling plan".*

The evaluation will take place by initiative of the planning Committee (Saba). Again the public and the stakeholders will be involved. The same approach is chosen on Saint Eustatius. The concept of an ongoing plan is also adopted in Saint Martin in a somewhat different way.

### General remarks

The possibility to participate during the whole process was considered adequate by the interviewed stakeholders (mainly NGOs: Saba Conservation Foundation, Stenapa Statia, Amigu di Tera Bonaire, Stinapa Bonaire, Saint Martin Nature Foundation).

## 4.2 Nature policies

### Introduction

Two distinct types of processes of nature policy formation could be observed during the study, namely the process on Bonaire and Saba (which were practically identical) and the process on Aruba. In this section, the processes will be described jointly.

### Issue search and agenda setting

The establishment of Nature Policy Plans (NPP) on the Antillean Islands will be an obligation under the new National Ordinance. Anticipating this Ordinance, Bonaire and Saba based their draft NPPs on the Contourplan of the Department of Public Health and Environment of the Central Government and its starting points.

On Bonaire, the Bonaire Marine Park (Stinapa) and the Department of Area Planning and Public Works (DROB) started the process by inviting all stakeholders to central meetings where the main issues and the outline of the future plan were discussed. Furthermore, the development plans were used for the issue search.

On Aruba, the Department of Public Housing, Area Planning and Environment (VROM) felt the need for having a policy document in the beginning of 1995. The major reason for this was ongoing nature and landscape degradation. This finding was strongly supported by NGOs and reactions in the Aruban society. In the course of that year, the Head of the VROM Department formed a governmental working group consisting of three employees of the VROM and Agriculture Departments each. This working group conducted the issue search and set up a working plan for the preparation of the policy plan.

### Deciding how to decide

For Bonaire, assistance for the NPP was provided by the Dutch Ministry of Agriculture, Natural Resources and Fisheries (LNV, see also section 2.2). This Ministry offered an employee who was involved in the establishment of the Dutch NPP, for a mission to Bonaire. During this mission, he was provided with all the information on nature management available (mainly by Stinapa and DROB). A first draft of the plan was discussed in a central meeting where suggestions were given by the attendants (NGOs, Departments, representatives of relevant sectors). A second draft will be sent to the Bonaire Executive Council for approval.

On Aruba, the combined expertise of the (governmental) working group and the Departments was considered to be sufficient to cover the field.

The working group produced a draft, which was presented to all NGOs and Government Departments in a special workshop. Their comments were included in the final policy plan. The policy document

was approved by the Executive Council at the beginning of 1997. This means that future decisions by the Executive Council, with respect to nature management, will be based on this policy plan.

### Issue definition

The phase of issue definition and articulation started with an inventory of available literature, mainly inventories on flora, fauna and nature areas. This literature proved to be sufficient to understand prevailing cause-effect relationships. On Aruba however some additional data needed to be acquired (about the quality of nature areas). This information was provided by the Pudrena project: a cooperation of the Agriculture Department and the University of Wageningen, the Netherlands, in which students and graduates were involved.

### Forecasting

In the NPP of Bonaire a brief description of the projected situation at the end of the plan period (five years) is given, aspects of this future situation are:

- biological diversity is stabilized;
- all nature areas on the map are legally protected;
- awareness among citizens and tourists leads to maximum support for the plan-objectives;
- capacity and expertise are sufficiently available at the level of the government but also in the private sector, there is a good division of responsibilities;
- Bonaire is known as a nature friendly island and its citizens can be proud of it.

In the formation-process of the Aruba NPP, forecasting is not used as a policy tool, nor was a map used to project the future situation.

### Setting objectives and priorities

The general main objective is worked out in two sub-objectives: species preservation and area preservation. During a public workshop this approach was discussed and agreed upon.

The priorities for area conservation are based on international criteria (IUCN). The priorities for species preservation are partly based on international conventions, partly on the local situation and the extent of endangerment. Priorities were discussed and set with all relevant NGOs. No constraints were identified in the preparation phase.

In the NPP of Aruba no prioritization of objectives has taken place, nor has an overview of constraints per objective been presented.

### Option analysis

No options or scenarios were proposed nor has any option analysis taken place. The plans are set up in such a way that it is tried "to save what still can be saved".

### Implementation, monitoring, control

The provisions for implementation, included in the plans, differ considerably. For the Islands of Bonaire and Saba, a detailed action programme (actions, partners, time table, budget needed, donors) is included in the plan. In the NPP of Bonaire, it is proposed to establish a separate project-fund for NGOs, which help NGOs carry out projects in line with the NPP. Approval of the plan by the Executive Councils and the Island Councils (which has not taken place yet) means that implicitly the budget is approved.

The monitoring during the plan period will occur by means of regular meetings between Government, NGOs, relevant sectors and citizens (action I.1 of Action programme).

On Aruba, policy implementation does not take place according to a programme. Neither was a budget prepared for implementation of the identified projects. There is however -especially concerning the Arikok project- much consultation and coordination between the Departments of VROM and Economic Affairs (Tourism and Agriculture). This resulted, among others, in the reservation of a large sum of money for the project (US$3,9 million). Monitoring of the implementation does not take place.

**Evaluation and impact on policy**

Unlike the development plans, the NPPs are not dynamic plans in the sense that they are changed every year (for a period of another year). In the Introduction of the plan it is formulated as follows (Bonaire): *"At the end of this plan period an evaluation will take place on progress of the execution and proposals will be developed for the period afterwards".*

No specific arrangements have been made for evaluation, maintenance, succession and termination of the policy on Aruba.

## 4.3 Policy plans for nature based tourism

**Introduction**

Policy plans for nature based tourism were established on Aruba and Curaçao. On Bonaire, the policy formation process is in progress.

In this section the processes mainly commented on concern the following policies: Arikok National Park Initiatives (Ministry of Economic Affairs and Tourism Aruba) and a Masterplan for Tourism Development (Curaçao Tourism Development Buro-CTDB). In this section, both plans are referred to as "Masterplan".

**Issue search and agenda setting**

On Aruba, plans have existed for an Arikok National Park since the 1970s. Three years ago, by assignment of the Government of Aruba, these plans were reviewed by a consultancy. In 1996, the Policy Plan on nature and landscapes stressed again the importance of protecting the Arikok area as a National Park. In the mean time also the Ministry of Economical Affairs and Tourism recognized the importance of the establishment of the Park and drafted a Masterplan with the purpose of presenting the ideas to the Aruba Government, to the Aruban. community groups, foreign investors and to the international community.

In recent years also the importance of a Marine Park for Aruba (and other Parks) was recognized; however, for capacity reasons, and the evident importance for tourism, it was decided to develop and implement the Masterplan for the Arikok National Park first.

On Curaçao, there was a strong need to guide physical developments in the tourism sector. The Government agreed that a Masterplan would be prepared. A request for financing was granted by the European Union.

One of the first steps in the policy process was the definition of the scope of the plan. Items that requested special attention were detailed designing of (possible) tourism locations, marketing, ecology, land use planning. It was decided in this phase that no detailed designs and no marketing aspects would be included, for capacity reasons. Another reason to leave certain issues out of the Masterplan was the expectation that decision making -on an already delicate matter- would be simplified.

Ecology and land use planning were given high priority in the plan. In this stage (1993), the choice was made to harmonize the plan with the Land Use Plan-EOP of Curaçao, which was a draft at that time (next section).

**Deciding how to decide**

For the development of the policy of Aruba the Commission Arikok National Park was established, consisting of employees of three Departments: (1) Public Works-DOW, (2) Agriculture-LVV and (3) Public Housing, Area Planning and Environment-VROM. The Commission formally fell under the Department of General Affairs, but the Committee reported to the Minister of Economic Affairs. This situation strongly contributed to an inter-sectoral policy dialogue.

The Commission drafted a project dossier with a zoning plan and a budget. This project dossier was approved by the Executive Council in the beginning of 1997.

On Curaçao a working group was formed for the preparation of the plan in which three consultants and seven employees of CTDB were included. The consultants were tourism and economic experts.

The process of the formation of the Masterplan involved five steps: (1) establishment of objectives, (2) inventories on human resources, natural resources, social-economic factors etc., (3) analyses of these data which involved comparisons, interoperation and rough cost-benefit analyses of certain developments, (4) establishment of a development strategy, and (5) preparation of the concept plans. In the beginning of 1995, the plan was approved by the Executive Council and on October 3rd, 1995 by the Island Council of Curaçao.

**Issue definition**

Issue definition took place in a series of policies and documents in which it became clear that the intensive use of the Aruba Arikok area made it necessary to come to zoning regulations and management regulations. Underlying studies were carried out by the Pudrena Project and Carmabi Curaçao (vegetation mapping).

Relevant information about cause-effect relationships (especially carrying capacity) on Curaçao was collected in the inventory phase of the process. Further, a separate study by CTDB (1992) was used, in which it was concluded that especially beaches formed a limiting factor with respect to the possible amount of tourists.

**Forecasting**

Several maps of the projected future situation are presented in the Masterplan of Aruba. No additional descriptions of possible futures were presented.

The development of tourism in numbers of visitors on Curaçao was forecasted by the policy makers of the Masterplan, along with an assessment of the resulting needs for accommodation, facilities, recreation and entertainment. For this forecast, a model was used which does not only take into account national developments (e.g. availability of rooms) but also -economic- developments in other countries. The forecast was used to estimate required manpower and required training programmes in the future (source: CTDB).

In addition, forecasts of development possibilities were carried out. These forecasts were used in the analysis of alternative development concepts.

**Setting objectives and priorities**

The main objective and first priority of the Aruba Masterplan was to create a National Park status for the Arikok area. This objective was further articulated by the Commission in consultation with relevant NGOs on Aruba (Fanapa, Stimaruba):

- preservation of landscapes and preservation of biodiversity;
- development of education, tourism and recreational opportunities within the park;

On Curaçao, objectives and priorities were set by the working group in consultation with all relevant Government Departments, Government-controlled enterprises and community groups.

**Option analysis**

During the plan preparation (and the years before) options were brought forward by Aruban government employees, NGOs and other stakeholders. All options concerned amendments on basic draft plans. The process was one of small steps, in which consensus was gradually reached between these participants (source: LVV). In some occasions, for option selection, the advice of external experts (Carmabi Curaçao) was asked.

In the beginning of the formation process of the Masterplan Curaçao, discussions were held about the type of development Curaçao would follow, the "Aruba"-type of development, the "Belize" type of development or something in between. Within the project team, it was chosen for the last option.

In the process supply and demand forecasts (see section forecasting) were used to evaluate alternative development concepts, especially with respect to (maximizing) revenues and (minimizing) impact on the environment.

**Implementation, monitoring, control**

Approval of the Aruba Masterplan (in 1997) implicated the approval of the estimated budget as well. The Government of Aruba reached consensus about a part of the total budget for phase 1 (US$3,9 million). For the full implementation of the plan, no certainties exist as yet. For this, Aruba will look for international investors and donors.

Although no implementation programme exists, the progress of implementation will be monitored. This will be done by a newly established Project Bureau, which is responsible for the implementation of the Masterplan (source: Masterplan). For the years 1997 and 1998 the budget for the project bureau is guaranteed (source Project Bureau and LVV). At the moment, the Project Bureau is supported by an external legal expert (costs donated by WWF), two landscape architects and a recreation expert from the Netherlands (Technical Assistance from the Netherlands). This support is needed to map the borders of the park, work out the legal status of all concerned areas, work out the zoning within the park, formulate management-rules etc.

The Curaçao Masterplan is set up as a flexible plan, in such a way that it will respond to changing circumstances and still achieve its basic development objectives. Further "It recognizes that preparation of plans does not automatically guarantee the proposal will be implemented and therefore concentrates on realistic and practical means to achieve implementation" (source: Masterplan).

The plan itself has no legal status like the Land Use Plan of Curaçao (EOP), nor does it include any "hard policy tools" like (approved) budgets for projects or upgrading of institutional capacity. It does, however, refer to certain tools to be implemented. Especially the importance of legislation for nature and environment conservation (the EOP, environmental impact assessment) was stressed. The plan aims for a full review and eventually the modification of all relevant legislation effecting tourism (including nature management, source: Masterplan). Responsible for the implementation are the

developers, Government agencies, community groups. CTDB is to be the leading catalyst in the process.

The Masterplan identifies a number of constraints that could compromise the plan. Required enabling actions are formulated to address these constraints. These are actions to facilitate some compatible developments and stop others. One proposed action with relevance towards forestry is to establish a legal status for a National Park Authority.

CTDB monitors the developments concerning tourism and the environment on a continuous basis.

### Evaluation and impact on policy

For evaluation of the Aruba Masterplan, no separate mechanism is provided for. On Curaçao the Executive Council decided (along with the approval of the plan) that an evaluation of the plan has to take place every five years and that the plan will be revised if necessary.

## 4.4 Land Use Policies

### Introduction

Compared to the other islands of the Netherlands Antilles and to Aruba, area planning on Curaçao has been an issue long before it was on the other islands. The main reason for this is that early in history, Curaçao was the centre of the colonial power. At that time, public lands were divided among colonists who founded plantations. The Government was left with 40 percent of the total surface of Curaçao, all rough and uninteresting lands. The other islands were poorly populated and stayed mainly undeveloped. Public domain lands are usually much more abundant on these islands (Aruba 90 percent, Bonaire 70 percent). Therefore, it is obvious that Government control on these islands was much stronger, while on Curaçao the need for a new instrument was badly felt.

In this section the development of a land use policy in Curaçao will be described. The development of policies of other islands is indirectly commented.

### Issue search and agenda setting

The necessity for better-organized area planning on Curaçao was felt in the 1970s. At the time, the population of Curaçao was growing and the need for new development possibilities became more and more urgent. In 1976, a National Ordinance on area planning was established. Since that time, Island Territories have been instructed to establish Island Ordinances and Land use Plans.

In 1978, a "Structure Plan" was developed by a consultancy which was used in the preparation of the policy (see option analysis). In 1980, the Island Ordinance on area planning in Curaçao became a fact. In this Ordinance, a preparation period for the plan of five years was given.

Because of restricted personal capacity it was chosen to establish a rough plan for the whole island that would be detailed by means of division plans.

### Deciding how to decide

For the fulfilment of this special task, the Department of Public Housing and Area Planning was established. In 1983, the Department started with the preparations for the Land Use Plan. In a first phase, research was carried out on nature values, agriculture possibilities, possibilities for economic developments etc. Most of this research (including financial consequences) was carried out by the

experts of the Department and colleague Departments. Additionally, inventories on nature values were carried out by Carmabi.

Two pre-concepts were distributed and subjected to broad public discussions before a Concept Land Use Plan was presented in July 1994. For 30 days appeal to the Island Council was open. This resulted in 470 appeals. After the discussion of the appeals in the Island Council, the final Plan was issued on August 25, 1995. This time, appeal to the Governor was open, which resulted in 100 appeals. These appeals were handled by legal experts of the Central Government and from the Netherlands (on the budget of the Department of Development Cooperation of the Central Government).

The conclusions regarding the appeals led to the National Decree of March 6, 1997, in which the Island Territory of Curaçao is instructed to implement the Plan. The Land Use Plan of Curaçao is in effect from May 23, 1997 on, which means that the plan will be used by the Executive Council as a guideline for the judgement of developments and building requests (as stated in the Island Ordinance on area planning Curaçao).

### Issue definition

In the preparatory phase it was studied how development-projections should be translated into terms of land occupancy. This was done in cooperation with all relevant sectors on Curaçao (tourism, housing, and agriculture).

The issue has been further defined and articulated during the research periods in the preparation phase. In this phase, questions were answered such as which are important natural and cultural monuments, what should be preserved?

### Forecasting

The forecasting consists of a map with the final zoning of the island, which clearly shows the concentration strategy (DROV Department).

### Setting objectives and priorities

The objectives were set by a Commission consisting of Heads of Departments of the Island territory. Priorities concerning nature protection were indicated by Carmabi and taken over by the Commission.

### Option analysis

In 1978, a Structure Plan was developed by a consultancy which was used in the preparation of the policy. At the time, the Land Use Plan was developed, these options were still open.

In the Structure Plan, three strategic scenarios were developed: (1) extension of Capital Willemstad to the east, (2) extension to the west, and (3) concentration of developments in the Willemstad area. On the basis of quantitative data it was decided that the third scenario was the most realistic. The financial consequences of extra infrastructure (maintenance etc.) to the east and west proved to be immense. Besides, new data came available indicating a diminishing population instead of a growing one. Finally, protection policies regarding the unspoiled east and west sides of the island were considered important.

### Implementation, monitoring, control

The plan has a legal status. Decisions that are considered not be in line with the EOP are open to appeal by stakeholders. The DROV Department is responsible for control on developments (but see constraints § 2.3).

### Evaluation and impact on policy

Evaluation of the plan is arranged in the Island Ordinance on area planning Curaçao. According to the Ordinance the plan should be revised every five years.

### General remarks

- The process of policy formation took app. 13 years, which indicates a serious lack of capacity for policy making.
- On Aruba, the VROM Department started only five years ago. No Ordinance on area planning is in effect as yet.
- On Bonaire lack of qualified planning officers limits the process of physical planning and the development of the planning office.

## 5. COUNTRY FORESTRY POTENTIALITIES

### Country forestry resources

The forestry resources of the Netherlands Antilles and Aruba are limited to shrub low forest, small areas of evergreen seasonal forest and rainforest and mangrove stands. In Section 1, an overview of different forest types, along with their surfaces, is given.

### Country demands and needs

On the Netherlands Antilles and Aruba, forestry does not substantially contribute to the production of wood, agricultural products, fruits, potable water and so on. The demands for these products are covered by imports and water production by desalination. Some groundwater is used for agricultural purposes.

Instead, forestry resources contribute most obviously to the tourism product: landscape, nature parks, nature trails and the blue waters protected by forests and mangrove stands. In addition, fisheries are dependent on a high quality of the marine ecosystem, which is, in turn, dependent on the quality of the terrestrial ecosystem including forests.

### Potentialities

*Establishment of legally protected nature parks*: It is widely recognized that the establishment of terrestrial nature parks open for the public to a certain extent is beneficial to both the quality of the ecosystem (expressed by biodiversity) and tourism. Especially the five proposed new nature areas on the five Antillean islands provide possibilities for integration of nature protection and tourism.

*Reforestation projects*: Studies of Grontmij and Sogreah (1968) and the University of Wageningen (1971) indicate that large surfaces of the Leeward Islands Aruba, Bonaire and Curaçao (20-25 percent) are suitable for forestry. The reforestation plans described in these studies indicate

that additional to the existing wooded areas, 15,000 ha could be reforested on these three islands (University of Wageningen, 1971).

Reforestation would substantially support groundwater conservation, limit erosion, limit wind-speeds in favour of agriculture, support tourism, support wellbeing for the island inhabitants, support the production of cattle fodder (Acacia and Prosopis for goats), and support the production of fence posts. The reforestation plan would create employment for app. 600 people. The plans have never been implemented because of lack of financial means (Department of Agriculture, Cattle Breeding and Fisheries Curaçao).

*In conclusion*: potentialities for the Netherlands Antilles and Aruba lie in the importance of at least conserving the forests for the longer future for their current functions (mainly tourism) and in the possibility of enhancing this function by creating nature parks. Even the creation of more functions by reforestation is a potentiality, however, this has not been given serious consideration yet.

*Mountain Mahogany*: On Saba, a small stand of Mountain Mahogany is present. No study or evaluation exists in which the possible uses for this stand could be, but it could be interesting to research the feasibility of possible uses (Saba Foundation Conservation).

### Comparative advantages

The main comparative advantages of the Netherlands Antilles and Aruba can be summarized as follows:

- political stability;
- relatively close to USA (Windward Islands);
- airport facilities on all islands;
- income from harbour activities (Curaçao);
- income from oil industry (Curaçao, Aruba, Bonaire, Statia);
- cruise facilities (Curaçao, Aruba, Saint Martin);
- large white beaches, large room capacity, frequent flights from and to USA (Aruba and Saint Martin);
- unspoiled nature and diving locations (especially Bonaire, Saba and Statia);
- important cultural heritage (especially Curaçao and Statia);
- elaborate shopping facilities (Curaçao);
- duty free status except for gasoline (Windward Islands Saint Martin, Statia and Saba);
- offshore services (all islands).

### National and regional markets

The most important markets for tourism of the islands are: the US, Europe and some Latin American countries. Especially for Curaçao possibilities for a larger market share are expected to exist in the US, Brazil and Colombia.

### Regional partnership opportunities

Partnership with Trinidad: In November 1996, a special delegation from the Netherlands Antilles (Governmental and private) visited Trinidad and signed a Letter of Intent with the purpose of stimulating economic and commercial cooperation between the countries. It is up to the private sector to work this intention out.

*Caricom*: No serious plans exist for the Netherlands Antilles to join Caricom (Bureau of Foreign Affairs Netherlands Antilles).

*UNEP*: It is expected by the Central Government Department of Public Health and Environment (VOMIL) that regional cooperation can be beneficial to the Netherlands Antilles and other islands of

the region. However it is emphasized that new regional initiatives be preferably coordinated through existent and regionally working organizations, like UNEP.

# 6. INSTITUTIONAL ARRANGEMENTS

## 6.1 Relations within the Kingdom

### Statute

The Netherlands Antilles, Aruba and The Netherlands constitute the Kingdom of the Netherlands. The "Statute" of the Kingdom determines in a restricted way the administrative responsibilities of the Kingdom as a whole. The main shared policy areas are Defence and Foreign Affairs. International Conventions - in which the Netherlands Antilles and Aruba want to participate- can only be ratified by the Executive Council of the Kingdom. This Council is constituted by the Dutch Ministers and the "Plenipotentiary Ministers" of the Netherlands Antilles and Aruba. Each Minister is politically responsible to his/her own Parliament.

This system implicates that -besides Defence and International Affairs- the Netherlands Antilles and Aruba are relatively autonomous countries within the Kingdom for their own territories.

### Governments of the Netherlands Antilles and Aruba

The "Regulation for the State" (of the Netherlands Antilles) of 1955 defined that the King is the Head of the Antillean Government, as such represented in the Antilles by the Governor. Since 1985 ,Aruba has a "Status Aparte" within the Kingdom with its own Governor and (National) Government.

The Governments of the Netherlands Antilles and Aruba consist of the Governor and the Executive Council (headed by the Prime Minister). The Ministers are politically responsible towards the chosen Parliament. Besides control of the Executive Council, Parliament is responsible for the establishment of legislation. A separate Council advises on new legislation.

### Island Governments

The Island Territories are governed by an Executive Council consisting of a non-voting appointed Lieutenant Governor and Commissioners selected from the elected Island Council.

The Executive Council is politically responsible towards the Island Council.

### Competence of the Island Governments and the Central Government

In 1953, the responsibilities of the Islands and the Central Government were codified in the "Island Arrangement Netherlands Antilles" (ERNA). The Island Territories are autonomous in the management of their own affairs (article 1.1). It is defined, in a restricted way, what the competence of the Central Government is. Examples are: police, inter-island transport, labour-policy and regulations, banking, health care, telecommunication and certain taxes (article 2 and 2a). A proposal for law which will be issued shortly, defines that the Central Government will be partly responsible for environment and nature management, as far as the policies are implementations of International Conventions (article 2 ERNA, proposed).

As a consequence, relevant responsibilities of the Island Governments are e.g.: economic affairs, tourism, agriculture, area planning, education and environmental and nature policies (not directly resulting from International Conventions).

## 6.2 Relevant Dutch institutions

Against the background of UNCED (1992), and the desire to give follow-up to Agenda 21, the Dutch Ministry of Agriculture, Nature Management and Fisheries offered their help to the Antillean Department of Public Health and Environment. On January 12th, 1994, an agreement on cooperation in the area of nature protection was formulated. Specific attention would be addressed to, inter alia:

- the development of a network of national parks, nature reserves and protected areas on land and in sea;
- recovery of forest-ecosystems and coastal zones;
- monitoring, legislation.

The cooperation concentrates on the exchange of experts, expertise and information.

Expected results of the cooperation are: the establishment of a National Nature Policy Plan, elaborated to island level; and implementation of International Conventions for nature protection (Biodiversity, Ramsar and CITES).

As far as forestry related aspects are concerned the Agreement has resulted in the exchange of expertise for the development of the Nature Policy Plans for Bonaire and Saba. In addition, a small fund for nature projects is co-funded by the Dutch Department. The total fund amounts to app. US$100,000 a year).

The Dutch Department KabNA (Cabinet of the Netherlands Antilles and Aruba) advises on the allocation of Dutch development-budgets and loans for the Antilles. Negotiations between the Antilles, Aruba and the Netherlands based on the so-called "Wawoe-report" will probably lead to a future in which the Antilles and Aruba give more direction to their own development.

## 6.3 National institutions with a relation to forestry (Netherlands Antilles)

For the scope of this study, two Central Government Departments are relevant: the Department for Development Cooperation (DepOS) and the Department of Public Health and Environment (VOMIL).

### DepOS

The responsibilities of the Department for Development Cooperation can be summarized as follows: (1) to give advice to the Central and Island Governments on socio-economic matters, and (2) to advise on and prepare the establishment of development programmes and development projects on the Islands of Bonaire, Saba, Saint Eustatius and Saint Martin. The Department has 30 employees working in three sections: human resource development, project preparation and physical projects.

The budget for consultancies and "Technical Assistance" from the Netherlands amounts to app. US$0,8 million (1996). This budget is used for the preparation of development plans, investment studies, policy preparation etc. Three employees have recently been contracted to support policy preparation, monitoring and evaluation.

### VOMIL

The forestry related responsibilities of the Department of Public Health and Environment can be summarized as follows: public health care and environment as far as within the competence of the Central Government (see section 6.1). This responsibility includes nature management, policy formation, and preparation of legislation and control on legislation. In this matter, the Department

advises the Central Government, as well as the Islands Governments. Policy analysis is not a responsibility of the Department.

The Department has three employees. It is planned that this number be increased to five persons in the short term. The output of the Department (forestry related) is a budget for terrestrial and marine nature projects which amounts to app. $200,000 (excl. salaries). The budget is funded partly by the Central Government, partly by KabNA and other external donors.

## 6.4 Island institutions with a relation to forestry

### *6.4.1 Bonaire*

On Bonaire, two Government Departments have responsibilities that are forestry related: the Department of Area Planning and Public Works (DROB) and the Department of Agriculture and Fisheries (LVV). There is no hierarchic relationship between these institutes.

As a result of the implementations of the Pourier report, several Government Departments have been privatized recently and included in a Government Holding. Privatized organizations with significance towards forestry related matter are: The Tourism Corporation Bonaire (TCB), which is responsible for tourism development and Selibon N.V., the privatized Sanitary Department, which is considered a good candidate for the maintenance of public green areas.

The forestry related tasks of these organizations are summarized below (source: "Organization Ordinance" of December 12, 1994). Also staffing, facilities and budgets are discussed.

**DROB**

Forestry related sub-tasks of the Department are: public housing and area planning, environment and nature management.

In the Public Housing and Area Planning section, eight people are employed, however, for area planning no staff is yet employed. For two planning officers, vacancies exist but no qualified candidates could be contracted as yet. The section Environment and Nature Management consists of one officer (also environmental focal point). Four officers are needed, of which one academic nature expert.

Apart from the salaries of the employees, there is no substantial budget for the sub-tasks mentioned. The staff depends on external (project) funds for this (KabNA, European Union, WWF etc.). In addition, the Department has received assistance for policy formation from VOMIL and a Dutch department (Nature Policy Plan, see Chapter III). Policy monitoring and evaluation will be a joint effort of DROB, the NGOs and relevant sectors on Bonaire.

**LVV**

Forestry related sub-tasks of the Department are: erosion control, nature-development, and research with respect to forestry and plant diseases and water-management. Despite the task-description in the Island Ordinance, there is a serious shortage of staff and budget to properly fulfil these sub-tasks. LVV carries out these tasks in the margin of their housekeeping.

Maintenance of public gardens takes place on a regular basis, as well as the management of a tree nursery.

**TCB**

Forestry related sub-tasks of the Tourism Corporation Bonaire are: tourism product development, marketing, monitoring of performance. TCB has a professional staff of eight. Two of these, academically educated, are responsible the process of policy formation, which is supported by consultants.

The yearly budget (a subsidy from government) is $150,000. This budget is insufficient for intensive marketing (especially in Europe) and for policy formation. For policy preparation and formation, TCB applies with success for external project-budgets (mainly from KabNA and the European Union).

**Stinapa Bonaire**

Stinapa Bonaire is an independent foundation, responsible for the management of marine and terrestrial parks on Bonaire. The Foundation is completely self-supporting (no government subsidies). Income is generated through entrance fees for the Washington Slagbaai Park (Government property), dive fees, external donors (projects) etc.

The Foundation needs extra capacity in the Washington Slagbaai Park (park manager and rangers). Extra income needs to be generated for this.

**Inter-sectoral policy dialogue and conclusion**

On Bonaire, the processes of policy formation in the different policy fields (especially development policies, nature policies and tourism policies) are intensively inter-linked. The main guarantees for proper coordination of policy contents are:

- coordination by DepOS (development and tourism policies);
- participation of virtually all Departments and all NGOs in the distinctive processes.

In the near future, the government organization on Bonaire will be restructured into four Sectors, each consisting of a cluster of interrelated Departments. Each Sector will have its own Sector-Head. It is supposed that this organization will bring an extra guarantee for coherence between Departments and between related policies.

In conclusion, there is a serious shortage of staff especially at the Departments of DROB and LVV and Stinapa. Intersectoral policy dialogue is considered adequate but will be optimized by the introduction of the sector system.

## *6.4.2 Curaçao*

On Curaçao a number of Government Departments and Government funded foundations have a relation to forestry and related matters:

- The Department of Area Planning and Public Housing (DROV);
- The Department of Agriculture and Fisheries (LVV);
- Carmabi Institute (foundation, funded through LVV);
- The Curaçao Tourism Development Bureau (CTDB).

**Department of Area Planning and Public Housing-DROV**

Core tasks of the DROV are the following: data management, advise, permits and control on building and construction, land administration, programme and projects, planning and public housing, and monument bureau. These tasks and supporting tasks are carried out by 70 employees of the

Department. The section of the Department which is most concerned with forestry related matter (e.g. land use planning) consists of nine employees.

Much of the work, including policy formation, is carried out by the employees themselves, no consultants are used in the process of policy formation (besides from the support from Carmabi). No special training opportunities exist for the employees responsible for policy formation.

**Department of Agriculture, Cattle Breeding and Fisheries-LVV**

In 1977, the Executive Council defined the tasks of LVV, not by Ordinance (like on Bonaire) but by a formal description. Since then the tasks of LVV are stimulation of agriculture, cattle breeding and fisheries; and landscape-management.

The latter task includes management of public parks, nature management, and groundwater management. This subdivision of tasks is also made in the budget of the Department. The budget of 1997 amounted to US$3.3 million. The largest part of the budget is reserved for landscape management (1997: US$2.1 million or app. 60 percent of total budget, source: LVV). Part of this budget is the contribution to Carmabi/Stinapa (1997: US$365,000).

As a consequence of a special analysis of Government tasks by the Island of Curaçao, on January 1st, 1998 the budget was strongly reduced and amounts to app. US$2.5 million. Most of the reduction takes place by reducing the work force (from 313 persons in 1997 to 67 in 1998).

This budget reduction is a serious constraint to the output of the Department with respect to the tasks formulated by the Decision of the Executive Council of 1978.

The Department itself produces no written policies on the task-areas, but is involved in much of the policy formation initiated by other Departments, as the Carmabi Foundation (e.g. Island development Plan.

**Carmabi Foundation**

The Carmabi Foundation consists of a scientific research centre and a park management for the management of the Christoffelpark, the Marine Park, the Shete Boca Park and several other smaller parks on Curaçao. The main objectives of the Foundation are scientific research and nature management.

The research centre including the Marine Park management employs seven staff: a geologist, a botanist, an ecologist, an agricultural expert, an analyst and a director. The Christoffelpark employs 12 permanent employees, most of these are guides.

The contribution form the Island and Central Government to the budget of Carmabi and the income generated by the Institution itself is as follows (situation 1997):

| | | |
|---|---|---|
| LVV (Island Territory Curaçao) | US$ | 365,000 |
| Education Department (Island Territory Curaçao) | US$ | 128,000 |
| National Government | US$ | 180,000 |
| Total Government | US$ | 670,000 |
| Income through Park management | US$ | 195,000 |

The Government contribution has been reduced over the years. The Park Management is forced to generate more income by means of their own initiatives e.g. park management and fund raising. This, however, is so time consuming that less and less time can be spent on important issues (e.g. education).

**CTDB**

In 1989, the Government of Curaçao announced the inauguration of the CTDF, the Curaçao Development Foundation. The executive arm of this foundation, the Board (CTDB), is responsible for the delineation of tourism policy. The Board is headed by the Commissioner of Tourism and is made up of representatives of different public and private sectors. Activities of the CTDB are:

- administration and regulation of tourism activities;
- product development;
- physical tourism planning;
- market research, marketing and promotion;
- promotion of tourism investment opportunities and facilitation of tourism development projects;
- training and human resource development.

The CTDB has 46 employees. Besides the directors, nine staff members are responsible for policy formation, monitoring and evaluation on the fields of marketing (five staff), investments (one staff), human resources (one staff), project development (one staff) and finances (one staff). The CTDB runs a training programme for their own personnel including training (abroad) on policy effectiveness.

The budget of the CTDB (US$10 million) covers the cost of personnel and marketing. Almost all projects concerning human resources and product development have to be financed through external funds (KabNA and EU).

In carrying out its roles, the CTDB works closely together with several private and public organizations, like the CHATA (Hotel Association), carriers, DepOS, The Foreign Investment Agency, DROV etc.

**Inter-sectoral policy dialogue and conclusion**

There is much cooperation between CTDB, DROV and LVV/Carmabi, which is also reflected in the contents of the sectoral policies. In this situation, it would be expected that a good basis for implementation would exist, however, implementation of these sectoral policies stagnates altogether. A possible explanation could lie in the poor economic performance of the Island of Curaçao in recent years, leading to political focus on (unimpeded) economic development.

Regarding the capacity for policy formation, Curaçao seems to be less dependent on consulting assistance than the other Antillean islands.

## *6.4.3 Saint Martin*

On December 1995, an Island Ordinance on the Organization of the Administration of Saint Martin was established. In this Ordinance the so-called Sector Model (which will be introduced in Bonaire, see section 6.3.1) was introduced. In this model related Departments are clustered to improve coordination between Departments. The model was first implemented in 1997.

In the new situation five sectors exist: (1) public health, (2) wellbeing, (3) economy and tourism, (4) physical development and works and (5) administration support. In addition, the SBO-Bureau or Bureau for Strategic Policy Development which is a part of "Administration Support" was established in 1997.

**SBO-Bureau (Strategic Policy Development)**

The SBO is a small Bureau (one Director) responsible for central policies and development planning, coordination of super-sectoral projects, strategic advise.

The SBO and the Executive Council are responsible for policy formation. Subsequently, the implications of the policies are discussed in the so-called Management Team. This is a team of Sector Directors, headed by the Island Secretary. The Sector Directors are responsible for the implementation of the policies within the competence of each Sector. The SBO supports the Management Team.

**The Sector Area Planning and Works (ROB)**

The Sector ROB accommodates five former Departments, among which the former Department of Public Housing, Area Planning and Environment (VROM) and the former Department of Public Works/LVV (DOW/LVV).

The tasks of the Sector ROB are the following (source: Island Ordinance 1995):

- area planning and public housing;
- permits and control on building and construction;
- environment and nature management;
- restoration and maintenance of monuments;
- management and exploitation of properties (land and buildings) of the island government;
- maintenance of buildings of the island government;
- planning, construction and management of works;
- planning, construction and management of cemeteries;
- planning, construction and management of public parks;
- waste management (collection and landfill);
- cleaning of roads and beaches.

Within the Sector ROB, the (former) VROM Department has most of the forestry related responsibilities e.g. land use planning and nature management. The Department employs eight persons. Apart from the Head (physical planner) and administrative support, the Department employs two GIS experts, one physical planner (also involved with nature management), one environmental coordinator, one environmental assistant and one legal advisor. The Department will work with a new GIS system (ARCVIEW) shortly.

The (former) Department of DOW/LVV employs one expert on agriculture, public parks management and forestry. Within the new Sector Model, cooperation between this expert and the (former) Department of VROM will be more intensive.

**Tourist Office**

The Tourist Office is a Governmental Department. The Tourist Office employs 14 people of which seven on the Head-Office. According to the Director, the structure of an independent Foundation would be more suitable, providing better conditions for preparation of stable policies. In the recent history rapid changes of Commissioners hampered seriously the process of policy formation by the Office. According to the Tourist Office, dialogue between Departments and dialogue between Departments and politics could be improved. As an example, the lack of input of the Tourist Office in the process of the formulation of MAPP was mentioned.

The new Commissioner of Tourism and Economic Affairs also wants more structure in the cooperation between the different Governmental Institutes and wants a programme to reach tourism goals step by step.

**Nature Foundation**

The Nature Foundation was initiated by the Island Government of Saint Martin (VROM Department). The Nature Foundation Saint Martin was established in January 1997. The main objective of the Foundation is, among others: *"the conservation, management and recovery of areas which are*

*important from the viewpoint of science, geological values, historical values, beauty of the landscape, .... , including the conservation and recovery of nature and landscape, etc.".*

The Foundation will try to reach this goal by: (a) acquisition, (b) management, (c) open areas and sites to the public, (d) fund raising, (e) advise government with respect to nature policies, (f) cooperation with other organizations active in this area, (g) activating the public opinion, (h) research, and (i) all other legal means.

The Foundation has an interim board of five persons to be extended to a maximum of 15. In addition the Foundation employs one Director and one ranger. The Foundation received a grant from WWF for the first years of their operation.

**Inter-sectoral policy dialogue and conclusion**

In the recent past, policies were often initiated and formulated by the separate Departments. These documents were sent to colleague departments for comments. In most cases, little reaction came back to the initiating Department. During the visit to Saint Martin, it was also heard that consensus on the level of Departments and the society is more difficult to build than on smaller Antillean islands like Saba, Statia and Bonaire (source: SBO, VROM, DepOS).

Inter-sectoral policy dialogue is expected to be improved largely by the activities on the Sector level and the activities by the SBO.

The Central Government (especially the DepOS Department) plays a less distinctive role than on other Islands of the Antilles (e.g. Bonaire see section 6.3.1). DepOS has no involvement in Development Plan (MAPP) and little involvement in tourism policies.

### *6.4.4 Saint Eustatius*

**Planning Bureau**

The Planning Bureau consists of one Planning Officer, responsible for various types of planning (socio-economic development planning, tourism planning). The limited institutional capacity is compensated by the use of consultants, especially in the process of policy preparation and formation. This type of support is mostly mediated by DepOS.

**DROB**

The Department of Area Planning and Public Works employs 48 personnel, of which one is responsible for control on construction on the island, one for land use planning (Head of Department) and one for environmental issues. The total budget of the Department amounts to US$3.3 million, which is meant for all responsibilities for the Department (including personnel, overhead and infrastructural works etc.).

The Department wants to set up a section for Land Use Planning. For this an additional app. US$100,000 is needed (equipment, tools, GIS). For the set-up of GIS, the Department would preferably sign a year's contract with an expert. Additionally, employees would need to be trained in the use of GIS. The Department works closely together with LVV and the Stenapa Foundation.

**Department of Agriculture, Cattle Breeding and Fisheries-LVV**

The LVV Department employs five staff. Another ten supporting personnel work for LVV but are contracted by the DROB Department. There are no employees responsible for policy formation; the Department has no policy plan for the operation of the Department.

The Department works with a narrow budget and a small staff, not allowing for a substantial contribution in policy formation (e.g. forestry, nature policy). According to the Department, Government gives more priority to the tourism sector, which is reflected in the budgets.

**Saint Eustatius Tourism Development Foundation**

The Foundation employs three persons: a Director, an Assistant Director and a P.R. assistant. The capacity is considered too small for the work to be done.

The education level of the personnel is higher and secondary education. The Foundation, however, wants to upgrade technical know-how and the capacity for fund-raising, preferably by local training instead of foreign training (Foundation).

A condition for EU funding is the presence of planning (policy) reports. These reports have to meet high quality standards, so that in most cases these reports are drawn up by consultants.

According to the Foundation, cooperation between governmental Departments could be strongly improved.

**The Stenapa Foundation**

Stenapa is an independent Foundation and has a board of eight local members and some American members. Besides associated local and foreign donors, important project funding is received from donor-organizations (WWF, DOEN-Netherlands, Antillean KNAP-fund). The Foundation employs four persons full time (two for terrestrial parks and two for the marine park). Stenapa needs an additional number of six persons, mainly for the terrestrial parks and the erosion problem.

The Island Government intensively involves Stenapa into policy preparation and many issues are left for the Foundation to deal with.

**Inter-sectoral policy dialogue and conclusion**

Inter-sectoral policy dialogue exists, as could be concluded from the process of policy formation of the Development Plan for Statia. However, some institutions state that this dialogue could be improved.

Statia faces a serious shortage of institutional capacity on different levels and is largely dependent on NGOs and consulting assistance.

### *6.4.5 Saba*

On Saba, human resources for policy formation are very limited. Two Departments are related to forestry matters: the Agriculture Station and the Planning Bureau (which is a sub-department of Public Works). Both institutions have one person employed. Only the Planning Bureau is actively involved in the process of policy formation.

The Island Government of Saba is not supported by a separate Land Use Planning department, like on (all) other islands of the Netherlands Antilles.

The Saba Tourist Bureau is a Government Department. The Department employs three persons (a Director, an Assistant Director and a secretary). Education levels are secondary. The Saba Tourist Bureau aims for a fourth employee to relieve workload.

Government subsidies involve salary costs, overheads and a contribution to foreign promotion.

The Saba Conservation Foundation is a fully government independent Foundation and has a board of seven members. Of the total number of financial donors to the Foundation (400), the largest part is foreign. The Foundation employs four persons full time and eight persons with a part time contract. The Foundation is responsible for the management of the Marine Park (2.5 persons) and for conservation of terrestrial nature (9.5 persons).

### Inter-sectoral policy dialogue and conclusion

Little capacity for policy preparation and formulation is available within the Island Government of Saba. Government is largely dependent on assistance from NGOs (like the Saba Conservation Foundation) and consultants. In most processes, DepOS plays an important intermediary role.

## 6.5 Aruba

On Aruba, several Ministries, Departments and organizations with a close relation to Government are prominent in the process of policy formation with respect to forestry related matters:

- the Ministry of Public Housing, Area Planning and Environment (VROM)
- the Ministry of Economic Affairs, in particular the Department of Agriculture and Fisheries (LVV) and Aruba Tourism Authority
- the Project Bureau
- Fanapa

These organizations work closely together, often by the formation of special Commissions.

### Department of Public Housing Area Planning and Environment-VROM

Forestry related sub-tasks of the Ministry are: area planning, environmental care, nature management. Especially area planning and nature management are priorities for the Department. The Department will concentrate on policy formation and will direct executive tasks to colleague Departments.

The Departments employs 13 staff, which will be increased to app. 17 in the near future. Two people are needed for environmental issues and nature management, two for area planning.

The Department acquired hardware and software to run a GIS (US$250,000). GIS training for staff takes place at the moment. In the next year, a monitoring system for data acquisition and monitoring in line with this GIS will be acquired (US$250,000).

### Department of Agriculture, Cattle Breeding and Fisheries-LVV

LVV is part of the Ministry of Economic Affairs. Forestry related sub-tasks of the Department are: nature management and erosion control. In 1996 the Section Nature and Landscape Management was established within LVV. This Section will be responsible for, inter alia: the tree nursery, information to the public about local trees, tree-planting projects (e.g. in urban parks). In addition, the Section has the responsibility for the management of the future Arikok National Park in cooperation with the Project Bureau (next paragraph).

Two staff members are responsible for the sub-tasks mentioned above.

LVV predicts a serious shortage of well-educated and trained people who will be needed in the new parks and recognizes the importance of education and training.

### The Aruba Tourism Authority-ATA

The Aruba Tourism Authority is part of the Ministry of Economic Affairs. Forestry related sub-tasks of ATA are: tourism product development, marketing, monitoring of performance.

One ATA staff member is especially concerned with nature parks and nature based tourism. ATA works closely together with other (governmental) organizations like the Project Bureau.

### Project Bureau

The Project Bureau is a full Governmental organization that is responsible for the management and control of the Arikok National Park (including organization, planning, zoning, contracts etc.). During the construction phase this responsibility is shared with the Department of Agriculture. After the transition period, the Bureau will be transformed into an NGO that will be financially independent. After the construction phase, monitoring of park operations, education and research will become important responsibilities of the Bureau.

At this moment, the organization exists of five government employees from different Departments (VROM). In the short term, three more employees will be contracted. By the time the Park opens, it is expected that 40 people will be employed. The Bureau is currently being assisted by a landscape architect, a recreational specialist and an archaeologist.

In the future, other nature parks will be managed by the organization. Manpower is considered to become a serious problem in the near future (source: Director of Project Bureau).

The Bureau has recently been provided with essential facilities: cars, office, mobile phones etc. The budget for the Bureau amounted to US$0,3 million for the last half year of 1997. In total, US$9,4 million will be invested in the Park, through the Project Bureau.

### Governmental commissions

Policy formation on forestry related matters in Aruba is in most cases organized within special commissions. Commissions have been established for the preparation of the Policy plan on nature and landscapes and for the preparation of the Policy plan for the Arikok National Park.

In addition a new commission (Commission for flora and fauna) was established 1,5 years ago. This Commission consists of non-Government members and has a legal status. The function of the Commission is to advise Government with respect to species and area protection as formulated in the National Ordinance. This Commission is becoming more and more active.

### Fanapa

Fanapa is an NGO (foundation) which traditionally carries out the management of Government owned nature areas. This task has always been carried out with the limited means of the organization. Because of the scale of the Arikok project, the Government needed a new management organization (the Project Bureau). Fanapa still carries out other Government nature areas.

### Inter-sectoral policy dialogue

Inter-sectoral policy dialogue is stimulated by (1) the policy formation through Commissions, and (2) the strong interference of the Ministry of Economic Affairs.

**Conclusion Aruba**

New developments on the area of land use planning and nature management have put large pressure on existing organizations. Government organizations on Aruba change at a fast rate to adjust to these demands. Other organizations (governmental and non-governmental) are established to relieve pressure on existing organizations.

In most of the organizations substantial finances are made available for a proper fulfilment of their functions.

It is expected that the lack of qualified personnel will form a serious problem.

# 7. POLICY STUDIES

No policy studies have been carried out in the Netherlands Antilles and Aruba.

# 8. CONCLUSIONS AND RECOMMENDATIONS

## Conclusions

1. No distinctive forestry policy exists in the Netherlands Antilles. Elements of forestry policy are present in the (socio-economic) Development Plans, Nature Policy Plans, Tourism Policy Plans and Land Use Plans. From the development of these policy-areas an almost complete forestry policy resulted. However, important gaps still remain in the formation of land use policies.

2. The policies have in many occasions limited "implementation-power". This may seem a shortcoming, but, on the other hand, it was admitted that the inclusion of "hard" policy tools could lead to a lack of political support which, in turn, would lead to a serious delay in the policy formation itself. As an example of this dilemma, the Land Use Plan of Curaçao (EOP) could be mentioned. The Plan has a legally binding status, but has been through a policy formation process of 12 years.

3. A lot of rewriting of policies takes place while implementation lags behind. Sometimes relevant contents of one policy are taken over in another. The proposals to come to a Land Use Plan for Saint Eustatius and Bonaire, for example, are described in many policy reports for over 10 years. The process of redefining takes much time, which is not being used to overcome implementation problems.

4. Overall or higher policies (like development plans) are often established in a later phase than sectoral policies. Sectoral policies are being used to constitute overall policies, instead of the other way around. If it would be chosen to start from a central policy and work this out in sectoral policies, the cohesion of policies could be stimulated.

5. Although the Agricultural Departments are closely linked to the forestry sector (maintenance of landscape, public parks, management of tree nurseries), no written policies exist from these Departments.

6. Smaller Islands often lack sufficient institutional capacity. Most striking are the problems with the set-up of effective Physical Planning Units within the Departments responsible for Area Planning. In addition more capacity is needed in the parks (Statia, Bonaire, Aruba and Curaçao).

## Recommendations

1. The process of policy formation in the forestry related areas should be examined and standardized. Some of the examined processes have shown sophisticated policy formation aspects e.g. in which provisions for implementation were central (Saba Development Plan). These could be taken as a guideline. Training of employees responsible for policy formation should be considered.

2. The staffing of forestry related Departments should be examined and adjusted to the new tasks (physical planning, nature management).

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# APPENDIX - LIST OF ORGANIZATIONS AND PERSONS INTERVIEWED

| Aruba | Contact | Function |
|---|---|---|
| Department of Public Housing, Area Planning and Environment-VROM | Mr. Elton Lioe A Tjam | Head |
| Department of Agriculture, Cattle Breeding and Fisheries-LVV | Mr. Andre van Schaik | Head Section Nature Managem. |
| The Aruba Tourism Authority-ATA | Mr Castro Perez | Officer Eco-tourism |
| Project Bureau | Mr. Roeland de Kort | Director |
| Fanapa | Mr. Roeland de Kort | President |
| Stimaruba | Mr. | |

| Bonaire | Contact | Function |
|---|---|---|
| Department of Area Planning and Works-DROB | Mr. Eric Newton | Head Section Environment |
| Department of Agriculture, Cattle Breeding and Fisheries-LVV | Mr. Roy Emers | Head |
| Tourist Corporation Bonaire-TCB | Mrs Lilian Steward | |
| Stinapa | Mr. Hans Rietveld | President |
| Bonaire Marine Park | Mrs Kally de Meyer | Manager |
| Amigu di Tera | Mrs. Christie Dovale | President |
| Foundation for the preservation of Klein Bonaire | Mr. B. Bowker | President |
| Selibon | Mr. Ben Oleana | Director |

| Curaçao | Contact | Function |
|---|---|---|
| Department of Area Planning and Public Housing | Mr. Lionel Janga | Head Planning Section |
| Department of Agriculture, Cattle Breeding and Fisheries-LVV | Mr. Gerard van Buurt | |
| Curaçao Tourism Development Bureau | Mr. Faisol Ayoubi | Section Product Improvement |
| Carmabi/Stinapa | Mr. John de Freitas | Botanist |
| Amigu di Tera | Mrs. Yvette Raveneau | President |
| Defensa Ambiental | Mr. Lloyd Narain | President |

| Saba | Contact | Function |
|---|---|---|
| Planning Bureau | Mr. Bob Zagers | |
| Agriculture Station | | |
| Saba Tourist Bureau | | |
| Saba Conservation Foundation | Mr. Tom van 't Hof | President |

| Saint Eustatius | Contact | Function |
|---|---|---|
| Planning Bureau | Mr. Bob Zagers | |
| Department of Agriculture, Cattle Breeding and Fisheries-LVV | Mr. Greg Thompson | Head |
| Tourist Office | Mrs. Alida Francis | Director |
| Stenapa Foundation | Mr. Jan Faber | President |

| Saint Martin | Contact | Function |
|---|---|---|
| Bureau for Strategic Policy Support-SBO | Mrs. J. Dovale-Meit | Head |
| Department of Public Housing, Area Planning and Environment | Mr. Lewis Brown | Head |
| Department of Works and LVV | Mr. Godfried Richardson | |
| Tourist Office | | Director |
| The Heritage Foundation | Mrs. Elsje Wilson | President |
| The Nature Foundation | Mr. Jan Faber | President |

| Netherlands Antilles (Central Government and institutions) | | |
|---|---|---|
| Department of Public Health and Environment-Vomil | Mr. Jeffrey Sybesma | Section MINA |
| Foundation STAAN | Mr. Ron Pin | |
| CBS | Mrs. Martin | |

| Other | | |
|---|---|---|
| European Union | Mrs. Iris Von Birgelen | Consultant |

# A REVIEW OF RECENT FORESTRY POLICIES IN ST. KITTS AND NEVIS

**by Dr. Rory F. Fraser**

## FOREWORD

This country policy review represents an output of the first phase of an analysis of forest policies in Latin America and the Caribbean which the Food and Agriculture Organization (FAO) is carrying out in collaboration with regional and international organizations, such as the Central American Council on Forest and Protected Areas (CCAB-AP), the United Nations Development Programme (UNDP), Union Internationale de Conservation Natural (UICN), Finnish International Development Agency (FINNIDA), World Resources Institute (WRI), Centre for International Forestry (CIFOR), and the European Union (EU) Project on Agriculture Frontier. It follows similar exercises in Europe, Africa, the Middle East, and Asia and the Pacific.

In this documentation phase, FAO plans to draw on and update recent studies such as the Tropical Forest Action Programme, the Environmental Action Plan and the Country Environmental Profile. What is more important, FAO hopes to learn about the impact of forest policies from professionals, administrators, planners and people directly or indirectly affected by or affecting forests. The study is funded by the Commission of the European Communities in their effort to support the governments of the Caribbean Countries in defining, updating and modifying the national forestry policies, in order to increase the contribution of the forestry sector to national economic and social development through the sustainable utilization of their forest resources. Similar studies have been completed for: Bahamas; Barbados; Belize; Dominica; Grenada; Guyana; Haiti; Jamaica; Montserrat; Antigua and Barbuda; Saint Lucia; Saint Vincent and the Grenadines; Trinidad and Tobago; Aruba, Bonaire, Curaçao, Saba, Saint Eustasius, Saint Martin; Anguilla; Cayman Islands; Turks and Caicos Islands; and the British Virgin Islands.

In an effort to ensure that all facets of forest policy were considered, the following key individuals in St. Kitts and Nevis's forestry, natural resources, economic and planning sectors or agencies were interviewed: Calvin Howell and Joan Robinson (Nevis Heritage Society), Leonard Huggins (Nevis Environment), Charles Busue (Nevis Public Sector), August Merchant (Nevis Agriculture & Forestry), Randolph Walters (St. Kitts Environment), St. Claire Williams (St. Kitts Forestry), Rafael Archibald (St. Kitts Public Sector) Dr. Jerome Thomas (St. Kitts Agriculture), Jackie Armory, Campbell Evelyn and Kate Orchard (St. Kitts Heritage Society). In addition, studies related to forestry policies conducted over the past five years--by regional and international organizations (Organization of the Eastern Caribbean States (OECS), Caribbean Conservation Association (CCA), Caribbean Development Bank (CDB), University of the West Indies (UWI), UNDP, FAO, etc.)--periodicals, newspapers, national magazines, publications of political analysis, NGOs activities, emergency activities, special programmes of government agencies, the research of universities, reports by consultants, and information provided by news groups on the Internet, were reviewed. These sources were augmented by visits and discussions with people living and working in St. Kitts and Nevis.

This report attempts to summarize complex information into a document suitable for analysis, both at country and regional level. The document has been prepared in adherence to guidelines, on report organization and content, established by FAO during a pre-consultancy workshop.

# 1. INTRODUCTION

> "St. Kitts and Nevis are among the Caribbean's finest destinations for ecotourism.....On St. Kitts, among the vine-laden trees and tropical wildflowers of the misty cloud forest can be found a wide variety of rare and colourful birds and butterflies, as well as the elusive green vervet monkey. In Nevis, wander through the cloud forest that encircles the slopes of Nevis Peak...." In Eco-adventures in St. Kitts & Nevis (St. Kitts & Nevis Department of Tourism, 1997)

## Perceptions of Forestry in St. Kitts and Nevis

The twin islands of St. Kitts and Nevis view forestry from similar perspectives. Experience has made them realize that forest covering upper hill slopes is important to vital water supplies. Traditionally they have extracted fuelwood primarily for domestic use. Balancing these two activities is something the society has recognized and practised over the last century. Recently, however, there has been a growing awareness of the need to protect the environment and the islands' biodiversity. At the same time, the economic benefits of ecotourism have become more lucrative.

The term forestry is not frequently used in St. Kitts and Nevis. Most people are vaguely aware of the Agriculture Department's responsibility for granting permission to cut firewood etc. Some in St. Kitts remember when the sugar estates controlled what happened in the forests and most Nevisians know you cannot buy land or build a house above 1,000 feet. For many people, however, water supply and feral and untended animals are problems they associate with forestry.

One of the major differences in perspectives between the two islands is the control and use of resources. In Nevis, land had been made available for private ownership and over half of the land is privately owned. In St. Kitts, on the other hand, over two-thirds of the land is government owned. This may suggest greater involvement in land management in Nevis. However, many of Nevis' landowners live abroad and their land goes untended.

Forestry, therefore, is perceived to be a multi-faceted subject in the twin island. For many, the issues covered under forestry are extensions of agriculture and land-use issues. In this report, the object of analysis is the Kittitians' and Nevisians' perceptions of forestry. In subsequent sections, these perceptions establish the context and content for discussion of forestry in St. Kitts and Nevis. In the next section, some socio-economic indicators of the twin islands are presented.

## A Socio-economic Profile of St. Kitts and Nevis

In 1997, St. Kitts and Nevis is rated 49th in the world based on the UNDP's Human Development Index (HDI). This is the sixth highest HOT rating in the 20 countries of Central America and the Caribbean region. This HDI rating places the nation amongst the top 33 percent in the world in terms of health, education and income. This high ranking can be attributed to high literacy rates (90 percent in 1994), high life-expectancy at birth (69 years in 1994) and a relatively high per capita income (US$5,170 in 1996, US$1=EC$2.7). In addition, St. Kitts and Nevis, has one of the lowest unemployment and poverty rate, 12 and 15 percent, respectively, in the region. The islands are also rated as being relatively free of political and civil liberty infarctions by USAID (1996).

St. Kitts and Nevis are two of the smallest islands in the Eastern Caribbean. St. Kitts has 31,824 people in a 176 sq. km. (68 sq. miles) area. Nevis has 8,794 people in a 102 sq. km. (36 sq. miles) area. The population is predominantly Christian and of African descent. The infant mortality, crude birth and death rates were 18.9, 23.3 and 9.2, respectively, in 1996.

The warm balmy weather, of 23o to 26o Celsius and 8.3 hours average sunshine per day with annual rainfall averaging 55 inches per year, is excellent for both agriculturists and tourists. In 1995, sugar exports from St. Kitts were worth US $14 million and tourism in the twin islands brought in US$76 million. Combined, these sectors accounted for more than 50 percent of the total GDP of US$153. Food consumption has increased 9 percent in the past decade, inspite of declines in domestic food and agricultural production.

St. Kitts and Nevis have well developed infrastructure. There are 125 miles of paved and 175 km of unpaved roads on the two islands. There is an airstrip on each island, a large port suitable for docking cruise ships and international communications

Both of the major outputs-sugar and tourism-respond to fickle market conditions. Sugar is grown exclusively in St. Kitts, harvested by migrant labour and exported for processing. The continued production of sugar is a sensitive issue in the island. Some would like to see diversified agricultural production, others argue that inspite of its problems sugar still remains the best agricultural alternative. Tourism is seen as another labour based, externally-controlled monocultural activity, much like sugar. This economic structure is perceived to lack the sophistication of more advanced economies and appears very vulnerable to external forces.

St. Kitts and Nevis' GDP real growth rate was 4.5 percent, one of the highest in the region in 1995, and the current account deficit of US$20 million was one of the lowest. The twin islands state has the lowest external debt (US$56 million) in the region and also one of the lowest external debt to GDP ratios.

# 2. FORESTRY POLICIES IN ST. KITTS AND NEVIS

## Defining Forest Policy in St. Kitts and Nevis

The National Conservation and Environment Protection Act of 1987, and its subsequent amendment in 1996, establishes the goals and organizational framework for forestry in the twin islands. The proposed National Forestry Action Plan, identified a programme for implementing forestry in the islands. The National Environmental Action Plan identifies the mechanism by which these plans are integrated into national plans. The Environmental Impact Assessment and the Sustainable Development Programme provides for evaluation of forestry programmes. These documents and programmes along with internal agency guidelines represent forestry policy in the islands.

Concepts of forestry and forestry policy have evolved over the past century. Many of the current forestry laws have been in place for sometime, other laws are more recent in origin. There are also current and evolving issues which may result in new or revised policies. In this section, current forest policies and prior analyses are identified, while recent policies are discussed.

## Evolution of Forest Policy in St. Kitts and Nevis

Current governmental forestry policies in St. Kitts and Nevis were initiated close to a century ago. Excessive deforestation in the late 1800s led to the 1904 Forest Ordinance, the first such ordinance in the Caribbean (Mager, 1997). A Forestry Board, composed of planters, was created and empowered to control and manage the use of forests in the islands. Additional regulations to control burning in forests and charcoal production were added in: the Forestry (St. Christopher) Regulations of 1924; the Forestry (Fuel Supply) St. Christopher Regulations of 1927; and the Forestry (Nevis) Regulations of 1940; (CCA/IRF, 1991). These laws reflected sugar planters' awareness of the importance of watersheds.

Other externally developed, formulaic legislation were also implemented by British Governors. In 1913, the Wild Bird Protection Ordinance was enacted. In 1935, the Protection of Animals Ordinance followed. In 1937, the Rules for Agricultural Small Holdings were introduced. In the 1940s, there were

a spate of laws establishing parks and physical planning: the Public Parks Regulation Ordinance, 1944; the Warner Park Regulations, 1945; the Grove Park Regulations, 1947; and the Town and Country Planning Ordinance in 1949.

In the post-World War II- pre-independence (1945-1983) period, very little legislative activity directly addressed forestry. However, activities such as water management, other land-uses, and parks, came under increased public regulation. The Watercourse and Waterworks Act of 1956 and later the Watercourse and Waterworks Regulations in 1973 established a Water Board with regulatory powers. The Brimstone Hill Regulations in 1978 extended public protection to historic sites.

## Recent Forest Policy Initiatives

Post-independence national forestry policies have resulted from initiatives by international agencies and powerful nations who were becoming increasingly concerned about environmental issues in tropical developing countries such as St. Kitts and Nevis. As a result of this interest, there were calls for administrative and legal reform in the natural resources/ environmental sector. The first of these activities was a review of legislation related to natural resources management (Lausche, 1986). This study was followed by The National Conservation and Environment Protection Act (NCEPA) in 1987, one of the most comprehensive legislation for natural resources management in the region. In 1989, an institutional analysis of natural resources management by the OECS (Bourne, 1989). Then in 1992, an environmental profile by the Caribbean Conservation Association (CCA/IRF, 1992) was completed. In 1993, The FAO assisted GOSKN to prepare a national forest action plan (FAO, 1993). Finally, technical assistance by the World Bank, helped the GOSKN to develop a National Environmental Action Plan in 1994.

## The Current Political Agenda for Forestry in St. Kitts and Nevis

In 1994, GOSKN, with some external assistance, developed a Medium-Term Economic Strategy Paper, 1994-1996 (MTESP) which appears to have synthesized most of the elements of forestry and matters of policy raised in the late 1980's and early 1990's and integrated them into the national agenda. The broad objectives of GOSKN, as stated in the MTESP, are to:

(i) increase domestic savings and investment;
(ii) strengthen public finances;
(iii) improve the incentive framework;
(iv) accelerate economic diversification;
(v) improve labour market and social infrastructure policies;
(vi) provide a Public Sector Investment Programme (PSIP) of adequate size and composition with a Financing Plan; and
(vii) modernize public sector management.

The MTESP identified four growing concerns about the environment:

(i) inadequate solid waste management;
(ii) marine and coastal pollution;
(iii) soil and beach erosion; and
(iv) loss of habitat and deforestation.

The forestry and wildlife specific strategies to deal with these concerns were to:

(i) improve waste management with respect to Conaree salt pond, a habitat for migrating birds;
(ii) promulgate the necessary regulations to facilitate effective implementation and enforcement of the NCEPA
(iii) develop specific regulations to protect mangroves from the impacts of impending development;

(iv) adopt incentives for private sector investments in the forestry sector based on Tropical Forestry Action Plan (TFAP) recommended study;
(v) clarify property rights of land and trees and improve patrolling on the part of the Forestry Division matched with fiscal and tax incentives to spur activity and assist in agricultural diversification;
(vi) improve land-use planning through cadastral mapping, land capability and land use planning, organization and management review, and training;
(vii) introduce user fees for national parks;
(viii) divest public lands;
(ix) increase public awareness by means of education and training;
(x) provide adequate legal and regulatory framework;
(xi) strengthen the monitoring and enforcement mechanisms;
(xii) use appropriate technology and new investment; and
(xiii) encourage NGOs and local communities to enhance environmental protection.

At the same time, the action plan required the full implementation of the National Conservation and Environment Protection Act in which other specific forestry matters are addressed:

- provides for the selection and establishment of protected areas (national parks, nature reserves, botanic gardens, historic sites, or areas of special concern);
- creates a Conservation Commission to advise the Minister of Development on conservation matters and the administration of protected areas, and to function as a corporate body in respect to property held in trust;
- requires preparation of management plans for protected areas;
- provides for establishment of soil conservation regulations;
- declares ghauts to be areas of special concern;
- provides for the establishment of forest reserves and necessary regulations to protect them;
- provides for the protection of designated wild animals and birds;
- promotes conservation in the Federation as a part of long-term development planning.

In Nevis, the Director of Agriculture has expounded a forestry policy (Merchant, 1995). The basic objectives of this policy are;

- maintaining environmental stability through preservation and where necessary, restoration of the ecological balance that has been adversely distributed by serious depletion of the forest of the island.
- conserving the natural heritage of the island by preserving the natural forest with the vast variety of flora and fauna, which represent the remarkable biological diversity and genetic resources of the island.
- checking soil erosion and denudation in the catchment areas of springs and dams in the interest of soil and water conservation, for mitigating floods and droughts and the retardation of siltation of dams and springs.
- checking the extent of beach erosion along the coastline.
- increasing substantially the forest/tree cover in the island through afforestation programmes especially on steep denuded and degraded lands including agroforestry development.
- meeting the requirements of fuelwood, fodder, minor forest products and small timber for the population.
- increasing the productivity of forest to meet essential national needs.
- mobilizing the population to actively participate in afforestation activities to achieve these objectives.

## Policy Implementation

Some of the actions contained in the MTESP and NCEPA have been implemented. In a review of environmental protection in 1997, Mager indicated that a nine member Conservation Commission was created; the Brimstone Hill and Bath Hotel were established as protected areas; and an Environmental Tourism Awareness Project was successfully initiated. Howell (1996) indicated that legislation to reflect new environmental priorities were being reviewed and revised. He identified that under the Land Use Management Plan there is a requirement for EIAs prior to the development of any areas, for example, the South East Peninsula. Howell, also reported that the GOSKN has been taking steps to address manpower and financial constraints with regard to planning. He also noted that inefficiencies in the sectoral oriented public management were being addressed. Nevertheless, there were criticisms.

Mager, 1997 complained that there was "legislation without much action." He reports that the Conservation Commission only met three times and without much result; the NCEPA was not gazetted for two years after it was passed; there was no money budgeted to support the commission's operation; and 15 natural areas were proposed for protection and none had been acted upon. Howell (1996) contended that the fragmented approach to environmental management explained why environmental issues were accorded low priority status. The situation became a little more optimistic after the 1995 elections. A Director of the newly created Environment Department was appointed and ECU$400,000 was budgeted for the unit. The director was given responsibility for forestry and most of the sectoral fragmentation identified by Howell, was addressed. But there are still problems and issues, yet, to be resolved.

# 3. EMERGING AND CURRENT ISSUES AND PROBLEMS

> "The Federation of St. Kitts and Nevis has been touted as having some of the most progressive and comprehensive legislation in the English speaking Caribbean regarding the protection of our natural and cultural heritage, yet it is the view of many, that too many of our laws remain on paper, gathering dust, with little or no enforcement."
>
> Jacqueline Cramer-Armory (Heritage, 1995)

There are a number of problems and issues about forestry policy in St. Kitts and Nevis. Some of these concerns have existed for some time, others are current and then there are those that are emerging. Reports, other publications and the opinions of interested stakeholders were used to identify the more relevant/important issues, problems, topics and subjects under discussion.

St. Kitts and Nevis faces many of the problems of small independent island states. Bass and Dalal-Clayton (1995) contend that in small islands:

- economies are narrowly based and highly exposed to external economic an political influences;
- ecosystems are intimately connected- environments are vulnerable to external environmental influences;
- damaged environments erode indigenous economic and social potential;
- suffer many constraints in tackling unsustainable development-- human, capital and financial resources have never been adequate.

McElroy, DeAlbuquerque and Towle (1991) identify similar, yet very different problems, such as:

- routine lack of data, over burdened staff, skill deficiencies and crisis management style;

- management characterized by particularism--face to face personalize and kinship ties reduce objective decision-making, inhibit confronting serious issues and reinforce the status-quo;
- geographical remoteness tends to support the slack pace of administration;
- strong partisan politics and restricted job opportunities lead to caution and high turnover.

Finally, Eyzaguirre (1996) contends that in these economies technology generation and adaptation is impossible to undertake or manage, transaction costs are high and sustaining national institutions is difficult. These problems are best summarized by Pantin (1995) who suggests that:

> "There are understandable and unavoidable tension everywhere between the demands for employment, improved wage and living condition and the environmental sustainability of the economic policies implemented to achieve these demands. This tension is particularly acute in many small island economies in the world, and certainly in those of the Caribbean where there is widespread unemployment and poverty."

He also contends that even though people in the Caribbean are sensitive to environmental issues; they have not yet found the solution to three problems which are, economic survival, the consequences of the socio-economic activities on the environment, and anticipating, avoiding or mitigating the impact of the environment on economic survival.

Kittisians and Nevisians interviewed for this review expressed similar sentiments. They displayed a high degree of environmental awareness, an understanding of some of the unique challenges they face as small island states, and a deep commitment to finding solutions to their problems. They were also unanimous in expressing disappointment in the non-implementation of the TFAP. Many were of the opinion that most of the problems, issues and solution options were already developed. The major problem expressed by all of the interviewees was the lack of implementation.

Other problems, issues and subjects were also discussed. These include: an untrained technician responsible for forestry in St. Kitts; newly developing ecotourism impacting protected or reserve areas; uncontrolled grazing of feral monkey populations; lands slowly deteriorating through neglect, a fatal commitment to sugar in St. Kitts, a preoccupation with single-industry solutions, a lack of political will, a lack of conviction that forestry has much of a role in the economy, unresolved control of forestry in St. Kitts. In addition, there are other problems suggested earlier: the split federated states, the short-term preoccupation of politicians, the small pool of talent to draw from, the lack of consultative processes, the impact of external funding agencies on programmes, bureaucratic malaise and people's co-dependence leading to satisfying rather than optimal outcomes.

There seem to be a commonly held view expressed by both the NHS and SKHS that there is a lack of conviction in the political and administrative leadership as to the potential of forestry to contribute significantly to the economy. They contend that because these leaders are unaware of forestry's potential - for productive use of neglected land, boosting tourism and as a source of raw material for industrial production - there is little political will to implement forestry programmes. They further suggest that forestry only receives official attention when there is potential for external financing. On the other hand, public officials point to their efforts - under TFAP to obtain resources and the natural resources and environmental legislation they have developed - as an indication of their good intent. However, they lament the availability of resources - trained people and funds - and suggest this as a reason for the perceived lack of diligence.

In both islands there is a sense of fatalism about the structure of the economy. Some contend that the islands can ensure economic stability by bolstering their competitive edge in tourism and sugar-cane production. Their argument is that these sectors have worked for the nation in the past and to move away from them now would cause major dislocations in the economy. On the other side, there are those who propose greater diversification of the economy. They are uncomfortable with being dependent on single product economies. This latter group would like to see the production of alternative products - tree crops, agroforestry etc. - on fallow land or sugar lands. Their detractors suggest viable land use alternatives are not assured and any reduction of sugar lands (in St. Kitts) would undermine the whole industry. At the heart of this issue is the appropriate utilization of the limited land base.

There are three major problems with land left idle and unprotected on both islands. Feral monkeys in Nevis are said to be the major farm pest in the island. These monkeys live in the low bush and scrub cover on neglected lands and scavenge on the properties of those attempting to eke fruit and vegetable production out of their land. In addition, untended cattle, sheep and goats are allowed to roam over both managed and unmanaged land. This situation continues because the enforcement of regulations for untended livestock is very lax. These two problems, as well as natural processes, have caused major degradation of once productive lands. Erosion and compaction have reduced fertile, tillable land into rocky, rutted pastures browsed bare by animals.

Control of forestry is a major problem in St. Kitts. The chief forestry officer has no training in forestry. At the same time, both the Ministries of Agriculture and Environment claim responsibility for administering the forestry programme. As a result of the current bureaucratic impasse and skill deficiency, very little has or can be accomplished in forestry. Therefore, much needed regulation, of increased tourist activities, for example, is not receiving the attention it deserves.

The foregoing problems and issues in many instances are symptomatic of, and compounded by, the overall political and social malaise. National programmes such as forestry policies are bifurcated to meet the needs of two islands in a headlong battle for resources. The internal struggle for control has led to duplication of effort and a greater preoccupation with local versus national goals. Sectors, such as forestry, in need of long-term planning and significant national commitment suffer when politicians are preoccupied with short-term goals. As a consequence, there is a perception that the limited pool of resources is not used effectively or efficiently.

Momentum for forestry policy has come from external agencies attempting to provide regional assistance. The initiatives have received enthusiastic support from a small group of highly concerned and politically influential people. As a result, there have been changes in policy. However, even these groups feel that the consultative process is not very effective because the political culture is unfamiliar with public participation in decision making. As one of the NGO representatives put it "these are small societies and people are careful not to offend," decisions usually result in incremental changes in the status quo and large sweeping changes are avoided. Ultimately, decisions are crafted to minimize offending or alienating influential sections of the community.

## 4. PROCESSES AND MECHANISMS OF POLICY FORMATION

Public policies are formed in a series of phases, each with their own rationale. The policy process involves officers and agencies and mechanisms by which policies are formalized and legitimized.

In many countries, the process begins with issue search and agenda setting and is completed when decisions and actions are taken to terminate, change or maintain the policy. There are usually several processes of policy formation depending on the resources, scope and significance of the policies, etc. These processes have been mapped out in St. Kitts and Nevis in a study conducted by the OAS and OECS (1989) and are still relatively unchanged in spite of the change of government in 1995.

In the OAS-OECS study, the consultants identified actors and their responsibilities. In the report they documented natural resources laws and the responsible agencies--function, organization, budgets, capacity, capability, decision making and interrelationship. The specific objective of the report was to provide a description of the governmental agencies and organizations involved in the management and administration of the natural resources in the region. Therefore, they did not: indicate how issues and problems were identified and included in the government agenda; discuss the tools (identified the options and selection procedure) used for policy analysis; talk about how information was obtained for the analysis; report forecasting success; identify how objectives are determined and articulated; specify the mechanisms for implementation of policy; provide examples of policy tools; or determine the priori conditions for policy evaluation.

Other studies have alluded to aspects of the policy process not covered by the OAS-OECS study. Specifically, the CCA (1991) discussed forestry policy in their review of the institutional framework for environmental management. A DEPS (1996) report discusses the inherent lack of analytical and evaluative capability in St. Kitts and Nevis. Hill (1997) identified limited baseline information and

research as a major constraint to developing policies that result in sustained outcomes. OECS-NMRU/GTZ (1992) project identified both available and unavailable information used in natural resources decision making. They also identified some of the difficulties in obtaining information. Finally, the MTESP (1994) provides some idea of the process leading to government policies.

Discussion of the policy process with Kittisans and Nevisians support the thesis that public policy is an externally driven, top-down process. Most of the programmes, plans and regulations in the forestry sector are the result of externally funded, consultant driven activities. No doubt, local politicians, senior government officials and NGOs may have assisted in the process. There is also no doubt that these activities are very important to the economic and environmental well-being of St. Kitts and Nevis. But, from the reports and discussions there is the distinct impression that many of these activities are externally driven.

The plethora of international and regional initiatives in St. Kitts and Nevis has lead to the development of a forestry policy. However, implementation of the policy is a problem that needs to be addressed. In response to this situation, regional agencies have agreed to coordinate their initiatives. As James (1997) indicates, the UNDP has adopted an approach which requires policies to:

- be country driven
- be based on comprehensive multi-sectoral analyses
- reflect reform across the public services
- build on and draw from local capacity outside of government
- show tangible field results which benefit local communities.

These lessons have translated into guiding principles: national sovereignty, country leadership, systematic policy and institutional reforms, and awareness of forestry issues at all levels of the society. These lessons and principles are relevant to St. Kitts and Nevis, because not only are the policy processes externally driven, but the culture of systematic policy formation is in its infancy. A fact alluded to in some of the earlier studies.

Continued external influence is a reality in St. Kitts and Nevis and is likely to continue into the future. However, recent initiatives suggest that Kittisians and Nevisians, both within and outside of the public sector, will be able to influence the process more directly. The regionally coordinated Sustainable Development of Small Island States (SIDS) has provided a framework for evaluating the implementation of the 14 highest sustainable development priorities for countries such as St. Kitts and Nevis. Hill's report (1997) indicates that the policy process is one of the elements identified for continued scrutiny in St. Kitts and Nevis.

# 5. ST. KITTS AND NEVIS FORESTRY POTENTIAL

## Forests of St. Kitts and Nevis

Forests cover over one third (37 percent) of St. Kitts and over one fifth (21 percent) of Nevis. Most forests are owned by the government and occur on the top of the island peaks anywhere over 1,000 ft above sea level. In Nevis, the forest is almost all humid rainforest while in St. Kitts there are almost equivalent proportions of rain and cloud forest, moist forest and dry forests.

Forests were removed to facilitate agricultural production after the Europeans settled. However, concerns about water supplies, soil loss and ghaut erosion led to the 1904 Forest Ordinance which summarily restricted all activities in the forest. As a result, there has been very little interaction of the populace with the forest. Charcoal production was important in Nevis until the 1940s but this activity, like most other forest-based activities, has been sharply curtailed in both islands.

The forest serves a very important role in water supply, watershed protection and soil erosion. However, the forest contributes very little directly to the economy. A small amount of charcoal is still burnt, some building material is removed and there is local harvesting of small quantities of medicinals, wood for fish pots and fence posts, and fruits. Monkeys have been captured for use in

medical research and tree crops, such as coffee and citrus, are planted and harvested for local consumption.

Like most of the smaller islands in the region there are very few large animals except for introduced species, such as the monkey, goat, cow, donkey, pig and mongoose. Both the monkey and mongoose are now pests.

## The Role of the Forestry Sector

There is belief in some quarters that much of the currently untended public and private land can be used for agroforestry activities. The problem, some point out, is the labour force needed for this type of activity. At present, migrant labour work the cane fields of St. Kitts and find jobs in the Nevis tourist industry. There is an observed reluctance of Kittisians and Nevisians to work the land. The challenge seems to be to develop policy tools which provide enough incentives for land owners to put idle land into production.

A frequently mentioned land use alternative is the production of inputs, such as fresh fruit, meat and vegetables, for the tourist industry, which obtain almost all of their inputs from external sources. As in most of the other islands, the lower cost of imported foods and other consumables has discouraged this type of activity

Finally, there have been modestly successful efforts to increase ecotourism activities for tourists, especially cruise ship visitors. This activity has considerable potential because of easy, timely access to all areas of the islands. At present, marketing, regulating and coordinating these activities have just started.

# 6. INSTITUTIONAL ARRANGEMENTS

St. Kitts and Nevis institutional arrangements related to forestry have been analysed and reported by Lausche (1986), McHenry and Gane (1998), Bourne (1989), Chalmers (1990), CCA (1991), NEAP (1994), MTESP (1994) and Hill (1997). Three types of organizations are discussed--public, private and international.

## Public Institutions

The Federation of St. Kitts and Nevis, also referred to as St. Kitts and Nevis, became a fully sovereign and democratic state in 1983. The two islands have been administered as a federation since 1882. Between 1967 and 1982 they were an internally self-governing State in Association with the United Kingdom. Between 1882 and 1967 the two islands along with Anguilla were administered under a single Presidency by the British Colonial Office. Prior to 1882, the islands were administered individually.

The St. Kitts and Nevis Constitution Order of 1983 established a Governor-General as the Queen's Representative and the titular head of state. Under this order, a parliamentary democracy was established. That is, governance of the nation is the responsibility of the non-executive Governor-General, a unicameral House of Assembly and a Cabinet. The Governor-General is elected for a five-year term by the House of Assembly on joint nomination by the Prime Minister, Executive Head of the government, and the Leader of the Opposition. The House of Assembly may consist of 14 to 15 members: 11 parliamentarians or constituent representatives elected by universal suffrage; an ex-officio Attorney General who may also be elected; and three members--two nominated by the Prime Minister and one nominated by the Leader of the Opposition. The Cabinet consists of the Prime Minister and Ministers of GOSKN who are appointed by the Governor General on the advice of the elected member of the House who has the support of the majority of elected members. Executive power is exercised by the Cabinet, legislative power by the House of Assembly, and legal power is exercised in a manner consistent with English Common Law. The maximum interim between elections

is five years. In the most recent election, in 1995, there was a switch in political power--the new governing party had been in the opposition previously.

Executive authority is vested in 11-member Cabinet headed by a Prime Minister. Each member of the Cabinet is a Minister of SKN and has executive responsibility for a Ministry. Day-to-day administration of government is the responsibility of the Pubic Service which consists of employees of ministries and other public servants employed by the government.

Forestry is administered by the Forestry Unit in the Ministry of Agriculture. However, as indicated earlier, the Ministry of Tourism and the Environment in St. Kitts also claims responsibility for this function.

These units in both Nevis and St. Kitts have not functioned as effectively as they could have. In St. Kitts the present incumbent has no training in forestry, while in Nevis the person there has a diploma in forestry from the Eastern Caribbean Institute of Agriculture and Forestry.

## Private Institutions

There is a Conservation Heritage Society (CHS) in each island. The NCHS in Nevis and the SKCHS in St. Kitts, these are very vibrant organizations with their own newsletter and programmes which have gained some national attention. They are very concerned about their environment and have provided education, conservation and heritage awareness activities.

## International and Regional Agencies

There has been as much interest displayed by the international agencies in these two islands as there has been in other islands in the region. Over the past 10 years, there have been some major contributions to environmental activities in these islands

**ID: 457**

| | |
|---|---|
| Project Title: | CARICOM Tropical Forestry Action Plan |
| Country: | Caribbean |
| Funding Source(s): | 1) UK |
| Budget: - | BDDC/ODA pds 500,000 |
| Executing Agencies: | CARICOM/FAO |
| SIDS Focus: | capacity building, land resources |
| Description: | Tech Coop Officer to coordinate the preparation of the CARICOM TFAP plus funding for individual country mission loans report and preparation. |
| Time Frame: | 1990-1995 |
| Status: | completed? |
| Additional Info: | |
| Sources: | ODA - BDDC - Natural Resources Projects - December 1994 |

**ID: 459**

| | |
|---|---|
| Project Title: | Community Participation in Forestry |
| Country: | Caribbean |
| Funding Source(s): | 1) UK |
| Budget: | - BDDC/ODA pds 217,000 |
| Executing Agencies: | CANARI |
| SIDS Focus: | land resources |
| Description: | Increase participation of local communities in planning, management and implementation of activities to conserve forest resources |
| Time Frame: | 1994-1997 |
| Status: | on-going |
| Additional Info: | |
| Sources: | ODA - BDDC - Natural Resources Projects - December 1994 |

**ID: 465**

| | |
|---|---|
| Project Title: | UWI External Programme in Rural Development |
| Country: | Caribbean |
| Funding Source(s): | 1) UK |
| Budget: | - BDDC/ODA pds 483,000 |
| Executing Agencies: | UWI/U of London Wyes |
| SIDS Focus: | land resources, capacity building |
| Description: | Advanced training in agriculture and rural development; concentrates in providing wider training in management of rural development; UWI linked with WYE college to develop materials; post-graduate training in agricultural and rural development through distance learning. |
| Time Frame: | 1994-1997 |
| Status: | on-going |
| Additional Info: | |
| Sources: | ODA - BDDC - Natural Resources Projects - December 1994 |

**ID: 482**

| | |
|---|---|
| Project Title | Small Island Developing States Technical Assistance Programme (SIDSTAP) |
| Country: | Caribbean |
| Funding Source(s): | na |
| Budget: | na |
| Executing Agencies: | UNDP Special Unit for Technical Cooperation Among Developing Countries (SU/TCDC)/CARICAD |
| SIDS Focus: | capacity building |
| Description: | The mandate of this project is to assist SIDS in all geographical regions to meet their needs for technical assistance in support of sustainable development. In the Caribbean, a CARICAD/Bridgetown UNDP collaboration has conducted a survey to identify unmet needs (or gaps) in technical cooperation and capacity building in the priority areas under the 14 Chapters of the SIDS POA. For purposes of analysis and the preparation of project proposals, consultants have identified three (3) generic thematic areas in which technical cooperation needs should be addressed: (i) capacity building; skills development and best practices; (ii) policy formulation, legal and administrative infrastructure and; (iii)socio-economic opportunities and inter-sectoral linkages. "Unmet needs" that should be addressed arise from (i)inadequate databases and best practices of institutions for technology transfer and skills in areas of sustainable development; (ii) ineffective policy framework and technical facilities for HR Development and Management; (iii) limited capacity of NGOs and CBOs for Policy Advocacy and Impact Evaluation; (iv) weak information and communication systems for decentralized governance and public education to support sustainable human development and; (v) ineffective management of inter-sectoral linkages between tourism, agriculture and the environment. "Unmet needs" are also evident in regard to the "policy, legal and institutional infrastructures" of Caribbean SIDS. |
| Time Frame: | na |
| Status: | on-going |
| Additional Info: | |
| Sources: | fax communiqué dated Jan. 2, 1997 |

**ID:486**

| | |
|---|---|
| Project Title: | IFC-GEF Small and Medium Scale Enterprise Programme 007327 |
| Country: | Caribbean |
| Funding Source(s): | 1) GEF |
| Budget: - | US$4.3 mln |
| Executing Agencies: | IFC |

SIDS Focus: climate change and sea level rise; land resources; biodiversity resources; energy resources
Description: Experimental programme to stimulate greater involvement of private small and medium scale enterprises in addressing two GEF objectives: preserving biodiversity and reducing greenhouse gas emissions. A wide range of projects is anticipated including: carbon sequestration, energy efficiency and alternative energy initiatives (which address GEF greenhouse gas reduction objectives) as well as sustainable forestry, ecotourism and harvesting of non-timber products from forests and wild lands.
Time Frame: pipeline?
Sources: downloaded worldbank.org.html

**ID:488**
Project Title: Global Credit and Pre-investment Programme (RG0037)
Country: Caribbean
Funding Source(s): 1) IDB
2) Other
Budget: IDB US$37 mln
Total US$142 mln
Executing Agencies: Caribbean Development Bank
SIDS Focus: capacity building; land resources; tourism resources
Description: Programme to provide financing for productive activities in agriculture, industry and tourism sectors and for infrastructure investments and technical assistance needed by CDB's borrowing member countries and by CDB itself to support these activities.
Time Frame: pipeline (approved May 8th, 1996?)
Sources: IDB Projects - May 1996 - Vol. III Issue 4

**ID: 527**
Project Title: A Conservation Assessment of the Terrestrial Eco-regions of Latin America and the Caribbean (Published)
Country: Caribbean
Funding Source(s): 1) World Bank
2) GEF
3) World Wildlife Fund (WWF)
Budget: - US$200,000
- US$200,000
- US$200,000
Total US$600,000
Executing Agencies: WWF / IBRD
SIDS Focus: biodiversity resources; land resources; capacity building
Description: This IBRD/WWF report highlights most biologically valuable and threatened ecoregions of LAC. With limited resources and the need to balance conservation interests and the imperatives of economic development, an objective regional framework can be a useful input to help guide the investment decisions of regional organizations such as the IBRD, GEF, or the major international conservation NGOs, such as the WWF. To this end, the IBRD contracted the WWF to carry out an in-depth study to assess the conservation status of terrestrial biodiversity in Latin America and the Caribbean. LAC was divided into 178 natural terrestrial units, called ecoregions, as well as 13 mangrove complexes. The report includes a fold-out colour map of same. Using an approach based on the science of landscape ecology and conservation biology, the conservation status and biological distinctiveness of each ecoregion was determined. The result is the book "A Conservation Assessment of the Terrestrial Ecoregions of Latin America and the Caribbean", published in late 1995.
Time Frame: mid-1995, project duration 30 mths
Status: completed
Additional Info:
Sources: 1) Communication to Erik Blommestein, UN.ECLAC dated May 8th, 1996

**ID: 528**

| | |
|---|---|
| Project Title: | Study of Critical Natural Habitats in Latin America and the Caribbean (forthcoming publication) |
| Country: | Caribbean |
| Funding Source(s): | 1) Italian Consultant Trust Fund (Gov't of Italy)<br>2) World Bank |
| Budget: | - Italian Trust Fund US$350,000<br>- IBRD US$50,000<br>Est. Total US$400,000 |
| Executing Agencies: | IBRD |
| SIDS Focus: | biodiversity resources; land resources; capacity building |
| Description: | This forthcoming publication (approximately five volumes) would identify and locate many of the most important sites for biodiversity conservation within most LAC countries; these sites warrant special attention in project planning and implementation, and this site-specific compendium of Critical Natural Habitats is expected to be a very useful tool for i) environmental impact assessment of proposed new development projects; and ii)identification of high-priority sites for conservation projects, whether supported by the IBRD or other organizations. |
| Time Frame: | 1996-1997 (project duration 18 mths) |
| Status: | on-going |
| Additional Info: | |
| Sources: | Communication to Erik Blommestein, UN.ECLAC dated May 8th, 1996 |

**ID: 533**

| | |
|---|---|
| Project Title: | Development & Maintenance of Database of on-going and planned SIDS-related projects and programmes in the Caribbean |
| Country: | Caribbean |
| Funding Source(s): | 1) UNDP |
| Budget: | - US$116,000 |
| Executing Agencies: | UN.ECLAC |
| SIDS Focus: | capacity building |
| Description: | Project consists of maintaining and expanding the coverage of a database of on-going and planned SIDS-related projects and programmes. The first activity is to maintain the current coverage of the database. Specific tasks include the searching of Internet and WWW resources, use of written documentation such as UNDP Development Reports or newsletters, follow-up by telephone, fax and e-mail and entering the information in the database. This will be an on-going activity. The second activity will focus on completing the coverage of externally funded projects and programmes. Coverage of the databank will be expanded to include nationally-funded projects and programmes. The next activity will be to enlarge the substantive content of the database by introducing a searchable keyword register and expanding the current summaries. The final activity will be to prepare and keep up-to-date Web pages. |
| Time Frame: | 06/1996-06/1999 |
| Status: | on-going |
| Additional Info: | |
| Sources: | UNDP - Appraisal Format for Activity Proposals for Funding by SU/TCDC |

| | |
|---|---|
| **Project Title:** | **Capacity 21 Project - CDB/UNDP Cooperation - CARICAD Programme for Strengthening Capacity for Sustainable Development in English-speaking Caribbean** |
| Funding Source(s): | 1) UNDP/Capacity 21<br>2) Gov't./CARICAD |
| Budget: | - UNDP US$750,000<br>- Gov't./CARICAD US$100,000<br>Total US$850,000 |
| Executing Agencies- | CDB (CARICAD - Implementing Agency) |
| SIDS Focus: | capacity building |
| Description: | The objective of this project is to strengthen the national and regional institutional capacity to pursue medium- and long-term sustainable development activities in an integrated manner, thus ensuring greater cooperation among all the concerned actors (governmental and non governmental organizations, the private sector) and the achievement of more cost-effective and innovative approaches. In-depth objectives are as follows: development of consultative processes in selected islands that ensure the revision and implementation of the results of the SIDS conference and its implications at the national and regional level, as well as the revision of NEAPS, EIAs and other studies; ii) establishment of Sustainable Development Councils in each of the islands, ensuring the involvement of the governmental, NGOs and private sector; iii) collaboration of CARICAD and some leading regional institutions - CDB, UWICED, CCA, several regional NGOs and Barbados External Communications (BET) in the development of a Sustainable Development Network (SDN) among the islands in order to electronically share sustainable resource information, human resources, and valuable experiences so as to avoid duplication of efforts and optimize the rational use of human and institutional capabilities, and the available data on research and projects for the development of incrementally efficient activities; iv) to selectively train the Sustainable Development Councils at the regional level in updated processes and current issues; and v)to facilitate Interagency coordination among international donors and other support agencies in the region to maximize benefits from their interventions. |
| Time Frame: | 1994-1997 |
| Status: | on-going |
| Additional Info: | |
| Sources: | 1) UNDP Project Document - "Strengthening Capacity for Sustainable Development in English-speaking Caribbean"; 2) Caribbean Centre for Development Administration CARICAD/UNDP/CDB Capacity 21 Project - Status Report; 3) Caribbean Development Bank - Status of Technical Assistance Projects Under Implementation. As of June 30, 1996. |

# 7. POLICY STUDIES

Forestry policy studies have been part of other studies. In this section, information on research and other activities--carried out for the purpose of understanding policy formation--is presented. Some of the areas addressed by these studies might have been: how policies are made (process study); what policy assumptions and proposals were examined (policy content analysis); what analytical methods were used in identifying and selecting options (meta-analysis), what impacts were identified and how cost effective were implemented policies (policy evaluation). Studies carried out during the last 10 years are tabulated below.

# Policy Studies in St. Kitts and Nevis in Past 10 Years

| | |
|---|---|
| **Name of Study:** | **Description of National Legislation Related to Natural Resources Management** |
| Purpose and Main Objective: | To improve the capacity of the OECS and its member countries to plan the use of resources. |
| Sponsor and Implementing Agency: | |
| Funded by: | OAS-GTZ |
| Publication by: | OECS-NRMP |
| Budget and Duration: | |
| Budget: | na |
| Duration: | May to September 1986 |
| Research Methodology: | Interview government officials and Document search for legislation |
| Type and Sources of Information: | Personal comments and legal documents. |
| Results of Study: | Compilation of legislation, preliminary analysis and observations, and recommendations for follow-up. |
| Scope of Study: | National report |
| Follow-up: | Institutional analysis in the area of natural resource management : the case of St. Kitts and Nevis. |

| | |
|---|---|
| **Name of Study:** | **Institutional analysis in the area of natural resource management : the case of St. Kitts and Nevis.** |
| Purpose and Main Objective: | An assessment of the institutions in St. Kitts and Nevis concerned with the management of the natural resources of land, forests, water, tourist amenities such as beaches, parks and wildlife, and waste management. |
| Sponsor and Implementing Agency: | |
| Funded by: | OAS / OECS-NRMP / GTZ |
| Budget and Duration: | |
| Budget: | na |
| Duration: | na, completed October 1989 |
| Research Methodology: | Interviews with 30 senior government officials and document search. |
| Type and Sources of Information: | Organizational charts, budgets, application forms and licences, manpower surveys, planning documents, and matrices of institutional responsibility from government departments. |
| Results of Study: | This assessment details the organization and functions of institutions, the interrelationships between them, the legislation governing them, and their adequacy and resource capability of these institutions for managing St. Kitts and Nevis natural resources. |
| Scope of Study: | National |
| Follow-up: | National Resource Accounting for St. Kitts and Nevis, 1992 |

| | |
|---|---|
| **Name of Study:** | **St. Kitts and Nevis: country environmental profile** |
| Purpose and Main Objective: | To document St. Kitts and Nevis's environment and environmental problems, and recommend public policies which would lessen and even prevent negative impacts on the resource base. |
| Sponsor and Implementing Agency: | |
| Funded by: | United States Agency for International Development |
| Publication by: | Caribbean Conservation Association |
| Budget and Duration: | |
| Budget: | na |

Duration: February, 1990 to April, 1991
Research Methodology: Interview public officials and private individuals and groups. Reviews of national, local, regional and international documents, papers, laws, reports, academic publications..
Type and Sources of Information: The most exhaustive data on all aspects of St. Kitts and Nevis's economy, environment and natural resources.
Results of Study: An environmental profile of St. Kitts and Nevis which includes a detailed review of the extent and economic importance of the islands natural resources and the changes in the quality and productivity of those resources. It reviews the institutions, legislative policies, and programmes which impact environmental planning, economic development and natural resource management and it identifies the major issues, conflicts or problems in natural resource management. (IRF library notes)
Scope of Study: National
Follow-up: Environmental agenda for the 1990's : A synthesis of the Eastern Caribbean country environmental profile series.

**Name of Study:** **Environmental agenda for the 1990's : A synthesis of the Eastern Caribbean country environmental profile series**
Purpose and Main Objective: To provide easy access to individual country profile findings and recommendations and therefore to increase their visibility to a wider audience of Caribbean leaders--both political and environmental..
Sponsor and Implementing Agency:
Funded by: United States Agency for International Development.
Publication by: Caribbean Conservation Association
Budget and Duration:
Budget: na
Duration: June, 1991 to September, 1991
Research Methodology: Summary of findings in six national environmental profiles.
Type and Sources of Information:
Nine islands' environmental profiles.
Results of Study: "An overview summary of the key environmental issues and problems identified in the six country environment profiles for St. Kitts and Nevis, St. Kitts and Nevis, Grenada , St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines." (IRF library summary)
Scope of Study: Regional summary with some national level findings.
Follow-up: na

**Name of Study:** **FAO Tropical Forestry Action Plan: For Nine CARICOM Countries: Report on Preparatory Mission**
Purpose and Main Objective: Determine the number, size and composition of TFAP missions required and prepare detailed draft
Sponsor and Implementing Agency:
Funded by: FAO
Budget and Duration:
Budget: na
Duration: October, 1989 to March, 1990
Research Methodology: A series of meetings with public officials, diplomats and regional and international agencies.
Type and Sources of Information: Anecdotal information and CDB Social and Economic Indicators for 1988.
Results of Study: List of contacts, summary of important issues/ideas/concepts discussed, and summary statistics.
Scope of Study: Regional--CARICOM except Guyana, Jamaica and Belize
Follow-up: TFAP missions.

| | |
|---|---|
| **Name of Study:** | **St. Kitts and Nevis: National Environmental Action Plan** |
| Purpose and Main Objective: | Set the agenda for environmental management in St. Kitts and Nevis for three years. |
| Sponsor and Implementing Agency: | |
| Funded by: | GOSKN with support the World Bank |
| Budget and Duration: | |
| Budget: | na |
| Duration: | na, Started in 1992 and completed in April, 1994 |
| Research Methodology: | First Draft based on field work and reports. Draft revised during four meetings of National Coordinating committee. |
| Type and Sources of Information: | Country Environmental Profile, National Forestry Action Plan and other studies |
| Results of Study: | Identification of major environmental problems in St. Kitts and Nevis and formulation of appropriate policies to address these problems. |
| Scope of Study: | National |
| Follow-up: | National Environmental Impact Assessment Action Plan for St. Kitts and Nevis |

| | |
|---|---|
| **Name of Study:** | **St. Kitts and Nevis: Medium-Term Economic Strategy Paper 1994-1996** |
| Purpose and Main Objective: | To identify policies which will stabilize the economy and promote growth in an increasingly uncertain external environment and which will enable a smooth transition for the economy. |
| Sponsor and Implementing Agency: | |
| Funded by: | GOAD with support the World Bank |
| Budget and Duration: | |
| Budget: | na |
| Duration: | na, August 1992 to April, 1994 |
| Research Methodology: | First Draft based on sector studies. Draft revised and NEAP incorporated. |
| Type and Sources of Information: | Eight sector Papers prepared between 1989 and 1993, and NEAP |
| Results of Study: | Statement of Government objectives for next three years and the strategy for accomplishing these objective. TFAP identified as the official programme for forestry. |
| Scope of Study: | National |
| Follow-up: | na |

| | |
|---|---|
| **Name of Study:** | **National Environmental Impact Assessment Action Plan for St. Kitts and Nevis** |
| Purpose and Main Objective: | To facilitate the formal introduction of EIAs into the planning decision making process in St. Kitts and Nevis. |
| Sponsor and Implementing Agency: | |
| Funded by: | OECS-NRMU |
| Budget and Duration: | |
| Budget: | n a |
| Duration: | completed April, 1996 |
| Research Methodology: | Review of national physical planning and requirements of EIAs |
| Type and Sources of Information: | Planning Acts, Environmental Profile, EIA handbooks and Terms of reference of Sustainable Development Council. |
| Results of Study: | Review of the Physical Planning Department and the process they employ. Summary of Issues/Constraints and Recommendations. |
| Scope of Study: | National |
| Follow-up: | Framework for Action: National Implementation of SIDS-POA |

| | |
|---|---|
| **Name of Study:** | **Framework for Action: National Implementation of SIDS-POA** |
| Purpose and Main Objective: | An assessment of the implementation of the Small Island Developing States Plan of Action (SIDS-POA) |
| Sponsor and Implementing Agency: | |
| Funded by: | ECLAC/CDCC with assistance of St. Kitts and Nevis's Sustainable Development Council |
| Budget and Duration: | |
| Budget: | na |
| Duration: | completed November 1997 |
| Research Methodology: | Questionnaires were mailed to 23 CDCC member countries and information provided by country Coordinators. |
| Type and Sources of Information: | National programmes |
| Results of Study: | Review of 14 programme areas and implementation activities. Including the five most successful initiatives, a rating of the 14 programmes relative to national and regional/international levels of implementation, a ranking of cross sectoral issues, identification of constraints to implementation, recommended actions to overcome constraints and major challenges, priorities and elements of strategy for future implementation of the SIDS-POA in the next five-years. |
| Scope of Study: | National |
| Follow-up: | Inform the Caribbean Ministerial Meeting on POA, Nov., 1997 |

# 8. CONCLUSIONS AND RECOMMENDATIONS

Forests cover the upper slopes of the hills of the twin island states. They play a very important role in water supply and soil protection. The also offer the potential for increased economic activities, such as ecotourism. However, there is a perception that forestry has very limited potential for providing economic opportunities and has received very little political attention.

The forests are little used by the general populace. There are some citizens who extract small quantities of herbs, wood for fish pots and fence posts and charcoal. There are also others who have started taking tourists on guided tours of natural areas. Then there are those who harvest monkeys for medical research facilities. These people are the exception since most Kittitians and Nevisians never venture into forests or obtain any direct benefits from these forests.

This relatively affluent and politically free nation does not have the unemployment and quality of life concerns of other countries in the region. In fact, these islands attract labour for the tourism and sugar-cane industry from other countries in the region.

Forest laws have been enacted since 1904 and the most recent, the National Conservation and Environment Protection Act of 1987 and amended in 1996, is one of the most enlightened in the region. However, very little has been done to implement the law and very little resources have been allocated for the forestry programme. Some believe this is a result of problems in locating the Forestry Unit, the bureaucratic malaise in the country and the lack of political will to effect forestry policy. In the meantime, land is deteriorating, economic opportunities may be missed and the national economy will continue to operate in response to fickle sugar and tourist markets.

The solution to this nation's forestry policy dilemma may lie in increased public participation in the decision making process, the provision of incentive for the utilization of idle or under utilized land and the commitment of public agencies to carry out programmes. A plan of action has been laid out in the NCEPA, MTESP and SIDSPOA. Implementation remains the problem.

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# ACRONYMS USED IN ST. KITTS AND NEVIS

| | |
|---|---|
| CANARI | Caribbean Natural Resources Institute (formerly ECNAMP) |
| CARDI | Caribbean Agricultural Research and Development Institute |
| CARICOM | Caribbean Community |
| CCA | Caribbean Conservation Association |
| CDB | Caribbean Development Bank |
| CEP | Country Environmental Profile |
| CFTC | Commonwealth Fund for Technical Cooperation |
| CIDA | Canadian International Development Agency |
| CITES | Convention on International Trade of Endangered Species of Wild Flora and Fauna |
| ECLAC | Economic Commission for Latin America and the Caribbean (United Nations) |
| ECNAMP | Eastern Caribbean Natural Area Management Programme (renamed 1989 as the Caribbean Natural Resources Institute, CANARI) |
| EDU | Economic Development Unit |
| EEC | European Economic Community |
| EU | European Union |
| EIA | Environmental Impact Assessment |
| EIS | Environmental Impact Statement |
| FAO | Food and Agriculture Organization of the United Nations |
| GDP | Gross Domestic Product |
| GOSKN | Government of St. Kitts and Nevis |
| GTZ | German Agency for Technical Cooperation (Deutsches Gesellschaft fur Technische Zusammenarbeit) |
| IDA | International Development Association (World Bank) |
| IFAD | International Fund for Agricultural Development |
| IICA | Inter-American Institute for Cooperation on Agriculture |
| ILO | International Labour Organization |
| IRF | Island Resources Foundation |
| IUCN | International Union for the Conservation of Nature |
| LAC | Latin America and the Caribbean |
| MOA | Ministry of Agriculture |
| NO | National Development Corporation |
| NGO | Non-Governmental Organization |
| OAS | Organization of American States |
| ODA | Overseas Development Administration (UK) |
| OECS | Organization of Eastern Caribbean States |
| OECS-NRMP | Organization of Eastern Caribbean States-Natural Resources Management Project |
| PPD | Physical Planning Division |
| REMS | Regional Environmental Management Specialist (USAID) |
| SPAT | Small Projects Assistance Team |
| UK | United Kingdom |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| US | United States |
| USAID | U.S. Agency for International Development |
| USAID/RDO/C | U.S. Agency for International Development/ Regional Development Office/Caribbean |
| UWI | University of the West Indies |
| WWF | World Wildlife Fund |

# COUNTRY REPORT: SAINT LUCIA

**by Y. Renard**

## 1. INTRODUCTION

The island of St. Lucia covers an area of 616 sq. km, or 238 sq. miles. 1989 estimates of forest cover give a total of 57,199 acres with 41,053 in forest, 18,562 in scrub forest and 6,584 in grass and open woodland (GOSL 1993). The Forest Reserve covers 18,526 acres, with 16,320 acres in natural forests. In addition, there are 3,900 acres of Crown Lands, with 27 percent of that surface under natural habitats.

Forested areas on private lands are estimated at approximately 35,000 acres. This implies that 10 percent of all private lands are forested (GOSL 1993).

There are six main natural vegetation types:

- the rainforest: this type of vegetation dominates the slopes of the mountains. The main tree species are the gommier, *Dacryodes excelsa*, and various species of Sloanea. The forest canopy is typically between 30 and 40 metres in height
- lower montane rain forest: in higher elevations, the plant composition and the structure of the forest change, with a lower canopy. Dominant species include *Licania ternatensis* and the palmiste, *Euterpe globosa*
- elfin woodland: this type of vegetation, also known as cloud forest, is found only on the highest peaks. Trees are typically dwarfed and show forms of adaptation to high rainfall, shallow soils and lower temperatures
- xerophytic forest: this is the natural dry forest, large portions of which have disappeared, and where species such as *Tabebuia pallida* are dominant. The dry forest is particularly important as the habitat of endangered and endemic wildlife species
- dry scrub woodland: in the driest parts of the island, scrub woodlands are found, with dominant species including the logwood, *Haematoxylon campechianum*, various species of Acacias, and *Coccoloba grandifolia*
- mangrove forests: the sixth type of vegetation found in St. Lucia is the mangrove forest. Several areas have been destroyed over the years, but there remain a number of mangrove areas, which have been inventoried and assessed (Portecop and Benito-Espinal 1985).

St. Lucia's wildlife is relatively rich and diverse. Important bird species include the endemic St. Lucia parrot, *Amazona versicolor*, which has been used extensively as a symbol in public information campaigns over the past fifteen years, the Semper's Warbler, *Leucopeza semperi*, the endemic St. Lucia Oriole, *Icterus laudabilis*, and the White-breasted Thrasher, *Ramphocynclus brachyurus*, which is endemic to Martinique and St. Lucia. There are also five endemic species of reptiles; other locally important animal species include the opossum, the agouti and the iguana. Forest habitats are critical to the maintenance of these and other animal species.

A primary function of the forest is the preservation of water supply. There are 37 main watersheds, with seven major river basins (Marquis, Roseau, Vieux Fort, Canelles, Troumassee, Fond d'Or and Cul de Sac rivers) which supply most of the water used in the country for domestic, agricultural and industrial purposes. Groundwater resources are insignificant.

Timber production has traditionally been done by small scale cutting and extraction of individual trees by sawyers, using the pit-saw technique and, more recently, the Alaskan chain saw, which is now used by a large majority of sawyers. A small number of trees are being sold each year from the Forest Reserve to sawyers for use by furniture makers, but most of the harvesting of trees is currently done on private forests.

The Department of Forest and Lands is no longer involved in commercial harvesting, except for the use of thinning materials from forest plantations, which are processed and sold as posts and fencing materials.

There are now approximately 650 acres of forest plantations, with the first of these having been established in 1938. The main species used are blue mahoe, *Hibiscus elatus*, mahogany, *Swietenia macrophylla*, and Caribbean pine, *Pinus caribaea*. Other species which have been used in drier areas include *Leucaena leucocephala* and *Gmelina arborea*. The largest plantation (211 acres) is in the Edmund Forest area. There are approximately 4.5 miles of roads within the Forest Reserve.

Plantation targets of the 1992-2002 management plan (GOSL 1993) have only been partially met. This has been due to budgeting constraints, and, perhaps more importantly, to the damages caused by a tropical storm (Debbie) in 1994, which required substantial investments from recurrent funds to reforest landslides and other degraded areas, and to repair and expand facilities, including trails. In the past five years, plantation work has therefore focused on the reforestation of areas formerly used by squatters (Marquis, Soufriere Range, Quilesse Range). Assistance in the implementation of some of this work has been provided to the Department of Forest and Lands by the Mabouya Valley Development Project, an integrated rural development initiative funded by the European Commission and implemented in one of St. Lucia's three large agricultural valleys.

Deforestation has been a major issue in St. Lucia in the past decades. In the 1980s, it was estimated that deforestation occurred at a rate of 1.9 percent per year, primarily as a result of the expansion of banana cultivation (GOSL 1993). On public lands, the main cause of the removal of forest cover has been the occurrence of squatting in the Forest Reserve. In 1992, there were 845 acres occupied by squatters, with the largest concentration in the Quilesse area (366 acres).

Among the various forest products which are commonly extracted, the most important is charcoal, which is used by a majority of households on the island. It is produced primarily from dry and mangrove forest areas, but also from private areas of rainforest, especially after lands have been cleared for agriculture. Other non-timber forest products include the *latanier*, *Coccothrinax barbadensis*, which is used to make brooms for local consumption and export, and the bamboo, which is commonly used in construction. Trees are also frequently used as windbreaks and for fencing in farming areas. A number of forest species are used for medicinal purposes.

Ecotourism has become an important activity in the forest in recent years. Within the Forest Reserve, tours are organized and guided by the Department of Forest and Lands, which generates substantial revenue from this activity. Government revenue from tours since 1991, compared to the revenue from forest products, has been as follows:

| | *1991* | *1992* | *1993* | *1994* | *1995* | *1996* | *1997* | *1998 (projected)* |
|---|---|---|---|---|---|---|---|---|
| Tours | 15,841 | 16,737 | 56,917 | 116,730 | 75,406 | 111,182 | 160,529 | 311,600 |
| Forest products | 46,075 | 21,035 | 62,256 | 86,949 | 54,828 | 84,831 | 69,919 | 88,800 |

Source: Department of Forest and Lands, personal communications. All figures in this table are in Eastern Caribbean dollars (US$1.00 = EC$2.7).
Note: 1994 is the year of tropical storm Debbie, which destroyed the main trail used for tours.

In 1997, the value of importations of timber and wood products, excluding furniture, amounted to EC$29,597,687.00.

Apart from the Forest Reserve, the only legally established protected area within the forest is the Parrot Sanctuary, covering an area of 4,200 acres, with 95 percent of that land being in the Forest Reserve and the remaining 5 percent on private lands.

In 1992, a plan for a System of Protected Areas (Hudson et al. 1992) was developed for the island, at the initiative of the St. Lucia National Trust, with the participation of a wide range of stakeholders. It provides a comprehensive framework for the establishment and management of parks and reserves.

The primary institution responsible for the management of the forest resource is the Department of Forest and Lands of the Ministry of Agriculture, Fisheries, Forestry and the Environment. Other

governmental agencies, non-governmental organizations, private sector bodies and community groups are also involved in the sector, and a more complete description of the role of these various institutions is provided in section 6 below.

There are a number of international conventions which have relevance to the forestry sector, and to which the Government of St. Lucia is a party, notably:

- the International Convention on the Trade of Endangered Species (CITES)
- the Convention on Biodiversity
- the Convention on Desertification
- the World Heritage Convention
- the Convention on the Protection and Management of the Coastal and Marine Environment of the Caribbean, also known as the Cartagena Convention.

**Socio-economic profile of St. Lucia**

| | |
|---|---|
| Population | 147,200 |
| Average rate of growth (1980-1991) | 1.6% |
| Density | 216 per sq. km |
| Primary schools (1993) | 84 |
| Secondary schools (1993) | 14 |
| Gross Domestic Product | US$390 million |
| GDP per capita | US$2,644 |
| Exports | US$79.5 million |
| Imports | US$270.6 million |
| Public external debt | US$128 million |
| Visitor arrivals | 423,388 |
| Visitor expenditure | US$269 million |
| Banana production | 105.6 million tons |
| Banana revenue | US$46.8 million |

Source: Eastern Caribbean Central Bank and government statistical data, all data from 1996 except when indicated otherwise

## 2. POLICY CONTEXT

Formal forest policies, which are described in the following section, cannot be understood if they are not placed within the broader context in which they operate. Formal policies are determined by a broad range of policy factors, including popular perceptions, the culture and structures of decision making, the distribution of power, and other sets of cultural, social and political rules and norms which guide the collective behaviour of people.

In St. Lucia, the following elements of context must be noted:

- in the St. Lucian psyche, forests are perceived as common property resources which historically did not fall under the control of the plantation, the dominant system of production. In the times of slavery, runaway slaves found refuge in forest areas, where they established small settlements (Devaux 1997). Following emancipation in the middle of the 19th century, forests and forest products became an integral part of the small farming systems which were established by the peasantry. The traditional perception of forests is therefore one where the resource should be accessible to all, and which is synonymous with freedom and evasion from the control of dominant systems. This perception helps to explain, for example, the fact that many St. Lucians maintain small gardens on hillsides even when this effort appears to have a very small impact on their revenue and subsistence;
- towards the end of the 19th century, because of the large demand for wood from the sugar industry in neighbouring Barbados (extensive deforestation had exhausted the timber resource in that country), and with the establishment of the port of Castries as a coaling station for boats, St. Lucia became an important source of wood and coals, and forest resources therefore acquired a cash

and export value, which determined much of the behaviour of land owners and others who had access to it;

- another important cultural actor which has influenced the popular perception of forests in St. Lucia is the development, in the 1970s, of the Rastafarian culture; which advocates a return to nature and a change in lifestyle, away from consumerism and materialism. This culture helped develop a positive perception of the forest, particularly among the youth, and encouraged many in farming communities to develop a caring attitude and behaviour toward the forest and its resources;
- in the 1970s and 1980s, the main economic factor which determined the perceptions and behaviour of St. Lucians was the expansion of banana cultivation. Thanks to favourable trading conditions, banana fields were established in areas previously covered by forests or mixed production systems, and most people became aware of a real or potential conflict between the economic demands of banana production and the requirements of forest management and conservation;
- popular perceptions of forest resources have also been influenced, to a significant extent, by the extensive education, awareness and advocacy campaigns carried out, in the 1980s, under the auspices of the Department of Forest and Lands. Largely in response to the rapid rate of deforestation, caused mainly by the expansion of banana production, the Department, led by a vocal and dedicated Chief Forest Officer, sensitized all St. Lucians on the importance of the forest and the dangers of deforestation;
- another important factor which has helped to shape the policy context, and which is partially a result of the advocacy work mentioned above, is found in the legitimacy, strength and image of the Department of Forest and Lands, both with the general public and with the government. It is respected as a competent institution, and its views are sought systematically on a number of issues. As a result, the Chief Forest and Lands Officer or his representative is part of a number of policy making and decision making bodies, thus gaining an opportunity to influence policy;
- another element which deserves mention at this stage concerns the institutional culture of governmental agencies in St. Lucia, and specifically two aspects of that culture: one is the fact that political power has typically been concentrated in the hands of the Head of Government, and in those of a small number of individuals and institutions. While this pattern is beginning to change, it has influenced the behaviour of all agencies. It is also one of the reasons why the country has no comprehensive development planning framework, and why there is a dominant culture within governmental institutions which favours short-term issue-specific decisions as opposed to long-term strategic approaches. The second element of institutional culture relates to the implicit and explicit mandate given to government departments, over the past few years, to generate as much revenue as possible. As a result, relative importance is being given to activities which generate revenue, and departments which do produce income are viewed favourably in higher spheres of decision-making;
- the last consideration which must be taken into account in an assessment of the context in which forest policy is formulated and implemented in St. Lucia, is the fact that a number of agencies in the country are proponents of, and have adopted, participatory approaches to planning and management. While the extent and forms of the practice vary from institution to institution, there is widespread acceptance of the value of participatory approaches, most agencies have concrete and valuable experience in using participatory methods, and this reality influences the manner in which policy is formulated and implemented in the country. Participatory planning and collaborative management are common features of natural resource management in St. Lucia.

## 3. CURRENT FORESTRY POLICIES

There is no overall policy statement to guide forest management in St. Lucia. In 1988, as part of an FAO programme which began with a regional study and workshop (FAO 1987) and was followed by technical assistance activities in a number of countries, a comprehensive forest policy document was drafted, and several of its elements were later incorporated into the forest management plan for 1992-2002 (GOSL 1993). But the policy was not considered in its entirety. One of the reasons given for the fact that this product was not used was that it conflicted, in certain areas, with the existing legislative instruments (McCalla 1991).

Similarly, there is no overall national physical development plan currently in use in the country, and such plans exist only for selected areas or regions. The latest national physical development plan was

formulated in 1977, and a new process was initiated in 1990, but it has not been completed. At the macro planning level, forest management and use is therefore guided primarily by a medium-term economic development strategy, which is developed by the Ministry of Finance and Planning to guide economic management in the country. This strategy is developed annually for all key sectors of the economy. With respect to forest resources, the strategy which is currently being drafted refers to Government's "policy of sustainable use of forest resources", and identifies four sets of measures:

- introduce appropriate user fees and incentive mechanisms for agriculture, tourism and industrial uses of forest resources which will reflect environmental costs. These pricing tools will be designed to support sustainable practices and discourage unsustainable practices;
- increase public participation and specific community involvement in more appropriate means for land improvement and other effective schemes of watershed improvement using forestry and agroforestry techniques;
- develop and implement a network of sites and trails in certain parts of the forest reserve. These sites and trails will allow for a greater public enjoyment and appreciation of forestry resources, will add to the nature tourism product, and serve as a classroom for learning conservation practices;
- implement a wildlife management programme, which will include the acquisition, assessment and evaluation of reliable data and information regarding Saint Lucia's threatened and endangered faunal species and their respective habits.

Policy guidance also is or will be provided by three sectoral plans which are all directly relevant to the forestry sector:

- a Biodiversity Action Plan is currently being developed, with funding and technical assistance from the United Nations Environment Programme (UNEP), within the framework of the Convention on Biodiversity;
- a Watershed Management Plan has recently been formulated, with financial assistance from the UK Department for International Development (DFID);
- a National Environmental Action Plan was developed in 1996-1997, and adopted by the Cabinet of Ministers in April 1997. This plan was developed at the request of the World Bank. The responsibility for its implementation lies within the Ministry responsible for the Environment.

The main legal instruments governing forest use and management are the following:

- the Forest, Soil and Water Conservation Ordinance of 1946, amended in 1957 and 1983. This legislation empowers the Minister of Agriculture to establish Forest Reserves on Crown Lands as well as Protected Forests on private lands. It stipulates the conditions for timber harvesting, makes provision for the control of squatting, and defines various other offences;
- the Wildlife Protection Act of 1980 places the authority for wildlife legislation in the hands of the Minister of Agriculture, and makes a number of provisions for the conservation and management of wildlife, through the listing of species, the establishment of reserves, and the setting of fines for a variety of offences;
- the Crown Lands Ordinance of 1946 establishes the position of Commissioner of Crown Lands and sets the conditions for the management and acquisition of Crown Lands;
- the Water and Sewage Authority Act of 1984 establishes the Authority and gives it some power for the conservation and management of watersheds. It allows it to request the Chief Forest Officer to take specific action required for watershed management, conservation or rehabilitation;
- the Land Conservation and Improvement Act of 1992 establishes a Land Conservation Board and gives it a broad mandate with respect to the management of land and water resources. It is a powerful piece of legislation, which enables the Board to deal with the issues of deforestation and inappropriate practices on private land.

The main policy document governing the forestry sector in St. Lucia is the forest management plan for 1992-2002 (GOSL 1993). Its goal is to "protect and conserve the natural resources for the protection of the environment and to obtain maximum utilization consistent with sustainable development with regard to the welfare of the rural communities and the country as a whole". It has been approved by the Cabinet of Ministers.

The plan identifies a number of specific targets, which can be reconstituted as follows:

- within the Forest Reserve:
  - reforesting deforested areas (estimated at 756 acres)
  - maintaining existing plantations (approximately 1,000 acres)
  - maintaining and enhancing trails
  - maintaining existing roads
  - expanding the Forest Reserve to include forested areas in contact with the existing Forest Reserve, existing water catchment areas, and forested areas located in the upper parts of watersheds
- on Crown Lands:
  - determining boundaries
  - promoting soil and water conservation
  - establishing plantations on steep slopes and riverbanks
- on Private Lands:
  - assisting private owners in managing forest resources
  - working with communities in establishing woodlots.

The management plan also defines specific objectives with respect to wildlife conservation and management; applied research on silviculture, regeneration and natural forest management; environmental education; community participation; ecotourism; and management of the nursery. It provides for management by area (geographic ranges, and sectors of intervention such as environmental education and research), with specific objectives identified for each.

Policies are also contained and reflected in the country's annual budget. For fiscal year 1998-1999, the Government of St. Lucia has allocated US$4.5 million to the recurrent expenditure of its Ministry of Agriculture, with the following amounts (all figures in US dollars) having been allocated to activities related to forest management:

- $100,000 to production forestry
- $3,000 to community forestry
- $40,000 to biodiversity conservation
- $53,000 to nature conservation
- $40,000 to environmental education
- $135,000 to watershed management
- $70,000 to Crown Lands management
- $160,000 to forest protection
- $110,000 to germplasm production (which includes nurseries)

Another significant provision of the 1998-1999 budget is that it includes an amount equivalent to US$6 million for land acquisition, to be managed by a Land Acquisition Unit within the Office of the Prime Minister. These funds will be used to pay for acquisitions which were decided over the past fifteen years, but for which payment had not been made. The main purpose of these acquisitions is the preservation of critical watersheds.

This allocation of resources represents the most explicit statement of forest policy in St. Lucia at this time.

With respect to income, the budget for the 1998-1999 fiscal year projects the following revenue (in US$):

- forest produce 32,600
- forest tours 116,000
- licenses and fees 4,600

This would bring the total revenue generated by the Department of Forest and Lands to US$153,200, or 43 percent of the total revenue of the Ministry. This objective provides important policy direction to

the Department of Forest and Lands, as it requires it to devote significant effort and resources to revenue generation.

A small but significant element of the 1998-1999 budget is the inclusion of an amount of recurrent expenditure for community forestry. This reflects the Ministry's acceptance and endorsement of the growing commitment of the Department of Forest and Lands to community involvement in forestry, as exemplified by the number of community projects and institutions involved in this field.

Two other policy instruments are: (1) the provision for the licensing of chainsaws, which allows the Department of Forest and Lands to effect some control over the harvesting of trees, as it assesses the intended use of the chainsaws and the practices of the applicant before granting the licenses. It is however noted that this measure is not supported by law, and adequate legislation is therefore required, and (2) the requirement that a removal permit be sought and obtained before lumber is transported from one location to the other. This allows the Department and other enforcement agencies to control the movement, and thus limit the production, of illegally harvested timber.

One of the most critical issues which government policy and action have had to address over the past few years is that of squatting in Forest Reserves, which provides a good example of the patterns of policy making, outside formal policy statements, with two radically different approaches having been used. The approach taken by the Department of Forest and Lands was to negotiate with farmers, on the basis of individual agreements to vacate, with relatively long time frames for implementation, with offers of alternatives for land purchase or rental in other areas, and with immediate planting of trees at the expiration of the time. As a result, most farmers complied, and there are only a few isolated cases which required legal action and coercion. There was however one exception, in an area where a different approach was followed, with a prominent politician intervening on behalf of squatters to stop action against them. In this area, the issue has not yet been resolved.

There are no provisions for fiscal incentives to reforestation of private lands, but the Department of Forest and Lands supports such initiatives through the provision of planting material and technical assistance.

In the broader field of parks and protected areas, the main policy instrument is the Plan for a System of Protected Areas for St. Lucia (Hudson et al. 1992) which contains comprehensive proposals for the establishment and management of nature reserves, national parks and other protected areas in the country. This document was formulated through an intensive process of consultation, and reflects the policies and priorities of the individual agencies, both governmental and non-governmental, which participated in its formulation. The plan has not been formally adopted by the Government of St. Lucia.

The current status of formal policy making with respect to forest resources can therefore be summarized as follows:

| *Policy requirement* | *Current status* |
|---|---|
| Provision of overall vision of and goals for forest management, within broader development context | No policy instrument available, except with respect to protected areas (informal policy contained in plan for System of Protected Areas). Overall policy frameworks provided by the national budget and the economic development strategies |
| Institutional coordination and collaboration | Environmental Commission established, has not met, status uncertain |
| Forest resource management | Forest, Soil and Water Conservation Act (1946, amended 1983). 1992-2002 management plan |
| Sectoral policy: water management | Water and Sewage Authority Act. No policy and no legislation to govern the management of rivers and river banks |
| Sectoral policy: biodiversity management | Wildlife Protection Act (1980). Biodiversity Plan under preparation |
| Sectoral policy: tourism and recreation | No policy, five-year strategic plan for tourism development under preparation |
| Sectoral policy: timber production | Forest management plan |

| *Policy requirement* | *Current status* |
|---|---|
| Management of forest resources on private lands | Governed, in part, by the Forest, Soil and Water Conservation Act (1946, amended 1983) and the Land Conservation and Improvement Act. Requirements for licensing of chainsaws and issuing of removal permits for lumber provide for limited control of cutting and harvesting |
| Information acquisition and dissemination | No policy |
| Public participation and decentralization | Informal policies of consultation and partnership between communities and government. Inclusion of community forestry in national budget for 1998-1999 |
| International cooperation | CITES, Cartagena Convention, Biodiversity Convention, Convention on Desertification |

# 4. EMERGING AND CURRENT ISSUES AND PROBLEMS

## The absence of a framework for policy formulation and review

There is a strong consensus in St. Lucia on the need for mechanisms and institutional arrangements which would allow for an integrated approach to policy making in the fields of sustainable development, resource use and environmental management. Several parties make specific mention of the need to give life to the Environmental Commission, as a forum where issues could be examined and addressed, and which could serve as a source of advice and direction on policy.

## The absence of a clear and fully enunciated policy to guide forest management

Largely as a result of the situation described above, there is no statement of policy with respect to environmental management generally, and to the forestry sector in particular. This need is recognized by all institutions concerned with natural resource management in the country.

## The need for a review of the forest management plan

The Forest and Lands Department sees the need to review the 1992-2002 forest management plan, to evaluate its performance to date, and to revise policies and programmes as appropriate. The leadership of the Department actually sees the need for a different and more permanent system of forest policy review and adaptation, a mechanism which would allow institutions and forest stakeholders an opportunity to respond to changes, to learn from their experience, and to formulate new directions, programmes and priorities.

## Inadequate use of existing legislation

Specific mention is made by the Department of Forest and Lands, the Ministry of Agriculture and a number of concerned individuals of the fact that the Land Conservation and Improvement Act of 1992 is not being used, while it could be a very powerful tool in support of forest conservation and management. Indeed, the Board which has been formally created under this Act has only met once, and has not yet been reconstituted following general elections in May 1997, when all Boards were asked to submit their resignation. The Board has not begun implementing the measures identified in this piece of legislation.

Similarly, the provision of the Forest, Soil and Water Conservation Ordinance which allows for the declaration of Protected Areas on private lands is not being used effectively, as private landowners have not been properly compensated, making it impossible for Forest Officers to enforce the law in those areas.

## Poor information base

A number of institutions note the need for a more complete and adequate information base. The Forest and Lands Department is particularly concerned with the fact that there is no ongoing research on the botany of the island and on the plant composition of established and proposed protected areas. It also sees the need for a systematic inventory of critical areas for plant conservation. The St. Lucia National Trust has for a number of years expressed the need for the production of a report on the state of the environment, and for ongoing monitoring of the status of resources and the impact of human activities on the ecosystem.

The need for more accurate data on deforestation and its impact is also noted by many, who observe that figures quoted in the past were based on estimates which were not necessarily reliable. Specific reference is made to the need to quantify the contribution of forest conservation to water supply, as well as the impacts of deforestation on such supply.

With the strong emphasis placed on community participation in forestry, and on activities which can help meet the demands of communities, there is need for more research and monitoring programmes aimed at assessing the potential of various approaches and species. For example, the literature (Andrew 1984, CCA 1991, Romulus 1987) gives conflicting assessments of the potentials of fuelwood plantations, but there are plantations in St. Lucia which, if properly monitored, could yield valuable information and lessons.

There is also need for new research on the demand for fuelwood, as most of the information available is somewhat outdated, and as the published data are also conflicting. Indeed, CCA (1991) raises important questions about the validity of that information, and confirms this need for research.

## The lack of effective management of private forests

Much of St. Lucia's forest estate is private, and it is felt that the instruments available to guide, influence and control the use of private forests are either inadequate or not used.

The Department of Forest and Lands makes specific reference to the urgent need for acquisition of lands located in critical watershed areas, and for the completion of the procedures of acquisition which have already been engaged. The implementation of this policy of acquisition will however be rendered particularly difficult by the fact that some of the lands earmarked for acquisition are currently occupied by tenants and squatters.

The Department of Forest and Lands also sees the need for the involvement of private land owners in forestry activities. Sensitization and mobilization work is therefore required, to demonstrate the potential benefits of plantations and forest management. This is why the Department has embarked on a pilot flower cultivation programme, which is initially taking place on governmental lands, but with the intention of extending it to private land owners if and when it is proven viable.

The Department of Forest and Lands and the Extension Division of the Ministry of Agriculture also call for policies and programmes that would encourage the use of agroforestry by farmers, and for the development and dissemination of practices of hillside farming which are compatible with soil and water conservation requirements.

In all these efforts, the provisions of the Land Conservation and Improvement Act and those of the Forest, Soil and Water Conservation Ordinance, if properly used and enforced, could achieve much.

## Future of forest plantations

With a total of approximately 650 acres of forests currently under plantation, the future of plantation forestry within the Forest Reserve is uncertain, primarily because of the projected costs of harvesting and extracting lumber. In order to define future policies and programmes in this respect, the Department of Forest and Lands sees the need for a survey of furniture makers and other users of local timber, to estimate demand in both qualitative and quantitative terms.

People involved in tourism also note the conflict which could exist between plantations and tourism uses, as such plantations affect the attractiveness of sites, trails and other areas visited.

## Squatting in the Forest Reserve

This issue is far less acute that it was only six years ago, at the start of the period covered under the current forest management plan. It was then estimated that there were over 800 acres of the Reserve occupied by squatters. At present, there remains only one area, covering approximately 250 acres. This achievement is remarkable, and reveals the success of the policies and programmes of the Department of Forest and Lands, which has given high priority to this issue in the past few years.

Illegal deforestation and squatting however continue to occur, in small areas, primarily for the establishment of illegal marijuana plantations.

## Impact of deforestation and inadequate management of the water resources

In the eyes of most institutions and individuals concerned, the impact of deforestation on the supply of water is the main issue, and this is the yardstick against which the effectiveness of forest management should be measured.

All key institutions, including the Water and Sewage Authority, the Department of Forest and Lands, and the St. Lucia National Trust, see the need for a change in attitudes and behaviour towards water resources, to avoid wastage and to maintain the quality of the supply. They are therefore calling for more aggressive campaigns of sensitization and information.

The Department of Forest and Lands and the Extension Division of the Ministry of Agriculture also see the need for farmers to improve drainage on farms, and to equip themselves, whenever necessary and applicable, with the capacity to store water.

A related issue concerns the inefficiency of the Water and Sewage Authority, which is reflected in its high financial losses over the past few years, the inadequacy of its equipment, and its extremely poor public image. The Authority is currently being restructured, at the initiative of the Government, with assistance from the Caribbean Development Bank. Another factor responsible for the destruction of watersheds is the construction of feeder roads in areas where deforestation should be avoided.

## Absence of legislation governing the management and conservation of rivers and river banks

Within the broader issue of watershed management which has been mentioned above, there is a specific concern for the conservation of rivers and river banks. The occurrence of a devastating storm in 1994 served to further demonstrate the need for such conservation. Current legislation is not adequate to address the issues (deforestation of river banks, contamination of river courses, indiscriminate use of water for irrigation, etc.).

## Management of ecotourism

There are a number of issues arising from the growth of tourism uses of forest resources in St. Lucia, notably:

- the definition of the role of the Department of Forest and Lands vis à vis that of communities, private sector interests, and other government agencies. The Department sees its role as focusing on:
  - facilitation of the design and adoption of standards;
  - provision of training;
  - provision of technical assistance;
  - establishment and management of trails;
- the relationship between government agencies and community groups involved in ecotourism initiatives;
- the need for standards of quality, to avoid negative environmental impacts, to guarantee visitor satisfaction, and to ensure that ecotourism activities are profitable and sustainable;
- the need for technical assistance in product development;
- the need for the development and acquisition of skills;
- the need for an organized and effective arrangement to market ecotourism sites and activities in a manner which preserves their character and enhances the benefits derived by local communities.

## Changing role and functions of the forestry administration

The observations made above with respect to ecotourism illustrate the larger issue of the evolving role of the Department of Forest and Lands, and the need for it to adapt to new conditions. The Department itself sees the need for more institutional cooperation, for a multi-sectoral approach to forest management, and for collaborative management arrangements whenever appropriate. Other institutions, including NGOs and organizations in the tourism sector, see the need for the Department of Forest and Lands to collaborate more systematically with other institutions.

The Department of Forest and Lands also sees the need to develop new skills and attitudes which would allow its own staff to work in partnership with others and to undertake the new tasks that are required for the Department to assume it ever growing agenda, particularly with respect to ecotourism.

## Availability of raw material for handicraft

A number of non-timber and timber forest products have been used traditionally for handicraft, but the growth of that sector has been constrained by a lack of variety in both materials and products. There is also a concern that some of the raw materials which are traditionally collected from the wild are becoming exhausted, due to over-harvesting. People involved in the craft and tourism industries therefore see the need for policies and actions in the following directions:

- preservation and management of the wild stocks of species used as raw materials;
- establishment of plantations to complement the wild stocks;
- provision of training and technical assistance to diversify materials, improve the quality of the products, and use the by-products from timber harvesting;
- identification of markets for craft products.

Such attention to the use of forest products would be fully compatible with the views of the Department of Forest and Lands, which sees the need for training of sawyers, furniture makers and craft producers in the use of the by-products of timber harvesting, in order to reduce waste and increase yields.

## Influence of financial and short-term economic considerations

A small number of individuals who have been involved in conservation and natural resource management activities in St. Lucia over the past two decades are expressing concern over the fact that short-term economic considerations appear to prevail in decision and policy making in the country. They fear that the emphasis placed on the generation of public revenue from the uses of the forest is resulting in a loss of attention to the conservation of resources which are critical for social, cultural and economic development, especially when the benefits from resource use are not easily quantifiable.

## Review of the form and content of environmental advocacy

A number of people active in the field of environmental education and management in St. Lucia are questioning the impact of the advocacy work which has been carried out over the past two decades by a number of organizations. They observe that the behaviour of the majority of people has not changed, even if there is now a much greater awareness of issues. They see the need for more focused and effective campaigns which relate to the daily lives and experiences of people, and which aim at changing perceptions, attitudes and actions of individuals and institutions.

# 5. PROCESSES AND MECHANISMS OF POLICY FORMATION

St. Lucia has been the focus of much attention and action in the field of environmental management over the past two decades, and a number of initiatives have been concerned, directly or indirectly, with forest policy. For the purpose of this study, these exercises are grouped into four categories, with the proposition that these categories reflect the dominant approaches to policy-making in the region at this time.

## Externally led policy initiatives

An important exercise in policy formulation has been the drafting of a forest policy in 1988, as a follow-up to the FAO Workshop on Forestry, Wildlife and National Parks Policy and Legislation which was held in St. Lucia in 1987 (FAO 1987). The policy, which is reproduced by Balmforth (1991), was based on "imperatives", i.e. statements of objectives, and there were six imperatives in the draft document, namely water, soil, heritage, output (forest products), participation and public awareness. The other sections of the policy document were organized as follows:

- obstacles to development, namely: the inadequate basis for resource management; the misuse of the land in the watersheds; the under utilization of the land, and related low productivity, and the national economic capacity;
- strategic objectives (secure the resource base, spread catchment control, plan for productivity; and maximum mutual assistance);
- constraints, identified as finance, land, operational capability and information;
- strategic programme, itself based on fifteen elements:
  - select, establish and manage forest reserves;
  - designate protected forests;
  - begin a watershed protection programme;
  - set up a forestry fund;
  - introduce a private forestry incentive scheme;
  - initiate research and demonstration;
  - develop harvesting methods;
  - designate and safeguard heritage sites;
  - establish national parks;
  - safeguard threatened and endangered species;
  - build institutional capability;

- improve consultation and coordination;
- prepare a sectoral development plan;
- initiate a public education programme;
- share expertise and service with other OECS (Organization of Eastern Caribbean States) countries.

The FAO project also produced draft forestry regulations.

The experience gained in this process can be summarized as follows:

- the regional workshop (FAO 1987) provided general policy directions which were used in the drafting of the policy document;
- the approach to the formulation of this policy followed conventional patterns, with an external expert consulting a small number of local actors and developing the policy document;
- one of the reasons why the regulations which were drafted could not be adopted is because their provisions exceeded the powers conferred by the Forest, Soil and Water Conservation Ordinance (McCalla 1991);
- the draft policy tried to provide a complete framework, including a detailed listing of programmes. This approach left no flexibility to the local institutions to internalize the policy objectives and translate them into their own plans of action. The policy sought to provide a blueprint, but blueprints are seldom useful to those who did not participate in drawing them;
- the materials produced by this project were however used in the more comprehensive process leading to the formulation of the 1992-2002 management plan.

A similar approach was used by the FAO in the preparation of the Tropical Forestry Action Programme (GOSL and FAO 1991), which presented the following features:

- the policy studies were all conducted by external consultants who visited the country for short periods of time, with the responsibility of assessing, and making recommendations for, specific sectors or issues;
- a national coordinator was appointed, who was a former head of the national forestry administration;
- a national committee was constituted, which met on a small number of occasions, but only once in the presence of the external consultants;
- the outputs of the process were prepared by the consultants, in collaboration with the various agencies identified as potential collaborators in the implementation of the programme;
- the conclusions of the study were presented to and approved by the Cabinet of Ministers.

The plan, as formulated under this process, has not been implemented, although a number of the activities it contained have been undertaken by individual agencies, with internal resources.

## Government-led technocratic processes

The case of the preparation of the forest management plan (GOSL 1993) is also interesting to examine, because it offers another example of a conventional approach to forest planning and management. In this instance, local resource people from the Department of Forest and Lands and consultants provided by the Canadian International Development Agency worked cooperatively to prepare the plan, with the governmental agency in St. Lucia providing much of the initiative, and being at the forefront of the process. This process involved a detailed review of the sector, the definition of management objectives, the identification of management issues, the formulation of management strategies for each geographic or thematic area, and the preparation of implementation plans.

One important characteristic of this process is that it was also concerned with the development of the capacity to implement the plan, with training of forestry staff, building of forestry headquarters and improvement of the nursery, establishment of trails, marking of boundaries and organizational development of the forestry administration.

In support of the preparation of the plan, a number of studies were carried out, including a feasibility study of harvesting and processing, a sociological survey, and a social impact study. As a first step in the development of social and community forestry, the project also produced a handbook for extension, for use by staff of the Department of Forest and Lands and collaborating institutions.

## National programming and budgeting procedures

As noted earlier, much of the policy direction for forest management comes from the normal programming and budgeting procedures of the government. Starting with the 1998-1999, the Government of St. Lucia has adopted new programming and budgeting procedures, which can be summarized as follows:

- annual programmes are developed for all ministries and other public sector bodies. Forestry work is part of the programme of the Ministry of Agriculture;
- the Ministry has developed a mission statement, has defined its scope of operations and its specific goals, has identified its focus for the year, with targets and indicators, and has selected a number of programmes (11 for the 1998-1999 fiscal year). These programmes do not correspond to the structure of the Ministry, but reflect strategic objectives;
- for each of these programmes, a similar strategic planning process is followed, with an identification of goals, scope, objectives and activities. Funding requirements are then specified.

This new system, when fully implemented, will allow for a more integrated approach to the work of government agencies, and will permit evaluation and review.

In reality, it is this process, far more than the formal exercises in forest policy making, which guides the work of public sector agencies such as the Department of Forest and Lands.

### *Participatory approach to policy making*

A fourth approach to policy formulation can be found in the process employed for the preparation of the plan for a System of Protected Areas for St. Lucia. In this instance, a participatory planning approach was used, which the final report on the project justified as a mechanism which helps to:

- build popular support for protected areas by investing people's interest in the well-being of their natural resources;
- ensure that the cultural, social and economic needs and concerns of communities most directly affected by protected areas are addressed;
- ensure that benefits from protected areas reach these same communities;
- help fill the gap when governments or other management entities lack the necessary funds and personnel for effective protected area management;
- integrate community knowledge of natural resources into protected area management;
- make protected area management more responsive to variations and changes in social and environmental conditions;
- provide training and opportunities for skill development in order for communities to participate in protected area management (Hudson et al. 1992).

The objectives of the plan were stipulated as:

- to build a consensus among all actors at the national and local levels on the objectives, elements and programmes of the System;
- to ensure that the protection of St. Lucia's natural resources contributes to an improved quality of life for its citizens;
- to establish the basis for ongoing cooperation and collaboration among community and national institutions in protected area management.

The preparation of this plan involved the following elements:

- the establishment of a broad-based Advisory Committee, vested with the responsibility to guide the participatory planning process. The Committee included government agencies (including the Department of Forest and Lands), non-governmental organizations, and representatives from local communities and private sector interests;
- the conduct of media programmes (radio, television and newspapers) to inform the public and seek its involvement in the process;
- the convening of approximately 20 informal meetings in various communities to sensitize the public and initiate a dialogue on issues of heritage conservation and management;
- the conduct of approximately 20 planning workshops, dealing with specific sectors, programmes or issues, to ensure that key stakeholders would have an opportunity to shape the recommendations of the final report.

Concurrently with these consultation activities, a systematic process of site selection was used, involving the following steps:

- a detailed inventory of protected areas existing prior to this project;
- development of criteria to be used in the selection of sites;
- mapping of all sites;
- field visits to assess site potentials;
- definition of management categories;
- identification of management areas.

## 6. POTENTIALS OF THE SECTOR

An analysis of the potential of the forestry sector can best be done by looking at the various functions of the resource, and determining, for each of these functions, the main constraints and opportunities.

| *Function* | *Potential* |
|---|---|
| *watershed conservation* | With no other source of water for domestic, agricultural and industrial uses, it is obvious that the storage and supply of water are the most critical functions of the forest, and they are functions which possibly supersede all others. No policy or programme should be adopted and implemented if it reduces the country's capacity to conserve and manage its water resources, in both quantitative and qualitative terms. |
| *biodiversity conservation* | Like all other countries in the region, St. Lucia has the responsibility to manage and protect the species, ecosystems and genetic pool which are part of its natural and cultural heritage. The presence of a number of endemic species in the country's forest ecosystems increases this responsibility. |
| *recreation* | There is significant demand for recreational activities and opportunities based on the use of forest resources (trails, rivers, waterfalls, scenic vistas), and this demand should be met. There is some concern in the country that priority is given to the use of facilities for the benefit of tourists, and that local people are not sufficiently encouraged to take advantage of them. |
| *tourism development* | The success of forest tours in St. Lucia has demonstrated the significant contribution that the forest can make to the development of tourism, particularly as it relates to the transformation of the tourism product into one which is based more directly on the natural and cultural heritage of the country. With the number of initiatives which are already in place, and with the level of awareness and interest which exists among most governmental and non-governmental institutions concerned, there is also a very special opportunity to develop community-based facilities and activities which increase the benefits to local people and give them an opportunity to participate in the development and management of the sector. |

| *Function* | *Potential* |
|---|---|
| *timber production* | The potential of the natural forest to contribute to timber production is very limited, because of the cost of establishing, maintaining and harvesting plantations, and because extractive activities are likely to impact negatively on the other main functions of the forest (watershed, biodiversity, recreation and tourism). The greatest potential for timber production therefore appears to exist: (a) in lower and drier regions, where large areas could be available for plantation of locally important species, notably *Tabebuia pallida*, which is in high demand for a number of uses, and (b) on farms, in the context of agroforestry. |
| *non-timber forest products* | Handicraft production is relatively important in St. Lucia, and there is a potential to develop non-timber forest products, particularly for use in the tourism market. There is also a potential to establish plantations of a number of species important for handicraft, notably *Coccothrinax barbadensis*, which is used for the production of brooms for local use and export. |
| *research* | The forest resources of St. Lucia, and the management activities which are concerned with these resources, offer unique opportunities for documentation and research, which would benefit forest and natural resource management in St. Lucia and in other parts of the region and the globe. This potential for testing and learning should be taken into full consideration in the formulation of policies and programmes. |
| *education* | The forest of St. Lucia has a significant potential as material for public education and as a source of inspiration. It is an important part of the country's heritage, and should be used in cultivating national pride and self-esteem. |

## 7. INSTITUTIONAL ARRANGEMENTS

The primary institution involved in forest management in St. Lucia is the Department of Forest and Lands of the Ministry of Agriculture, Fisheries, Forestry and the Environment. It is headed by a Chief Forest and Lands Officer, who also assumes the functions of Chief Wildlife Officer under the Wildlife Protection Act of 1980. The Chief Forest Officer reports to the Permanent Secretary in the Ministry. There is a position of Deputy Chief Forest Officer. The Department is organized in two main sections, each one headed by an Assistant Chief: one deals with Conservation and the other with Operations. The Department is also responsible for the management of the national herbarium.

Under Operations, there are four units: nursery (one Officer and one Assistant), extension (five Extension Officers), research (one Officer and one Assistant) and Forest Operations (five Range Officers and ten Forest Officers).

Under Conservation, there are five units: research, wildlife, education and information (one Officer and one Assistant each), survey and mapping (two Surveyors and two Draftspersons), and Crown Lands (two Lands Officers and six Assistants).

At present, staff of the Department includes 48 permanent positions, including administrative personnel. The Water and Sewage Authority does not have direct responsibility for watershed management, but the Act enables it to request specific action from the Forest and Lands Department, if it feels that such action is needed for the conservation or management of important watersheds.

The Ministry of Finance and Planning and the Development Control Authority are responsible for the formulation of development plans and for the control and regulation of land use.

At the non-governmental level, the main institutional actor is the St. Lucia National Trust, a non-governmental organization created by an Act of Parliament. It was established in 1975 for the purpose of conserving the country's natural and cultural heritage. Its main involvement in forestry issues comes from its role as the facilitator of the participatory planning process which led to the formulation of the plan for System of Protected Areas for St. Lucia (Hudson et al. 1992), which has been described above. The Trust owns and manages a small number of properties, including two which contain small but important forest habitats (Maria Islands Nature Reserve and Anse La Liberté); it has also entered

into partnerships with private and public owners for the management of other sites (Mankòtè mangrove and Frigate Island Nature Reserve). It has a total staff of 43 employees.

Another non-governmental organization which is occasionally involved in forestry issues is the St. Lucia Naturalists' Society. Its main purpose is to enhance national awareness of conservation issues, and to educate its members and the general public. It is a purely voluntary organization and its capability is limited.

Tourism issues are addressed by the St. Lucia Tourist Board, which is concerned primarily with product development, and by the Ministry of Tourism, which is in charge of policy-making, planning and management for this important sector of the economy.

At the community level, there are a number of organizations involved in community forestry projects, and this testifies to the importance of community and social forestry in the country. The main community-based organizations involved are:

- the Aupicon Charcoal and Agricultural Producers Group, which has been collaborating for fifteen years with government agencies and non-governmental organizations to manage a locally important mangrove forest (Smith and Berkes 1991) and to establish and manage a fuelwood plantation (Andrew 1986, Carnegie 1987, Walters and Burt 1991);
- the Darban Community Forestry Group, which manages a tree nursery, distributes seedlings to members and other farmers, and manages a small fuelwood plantation;
- Ital Farms, a group of Rastafarians which is involved in the rehabilitation of degraded slopes on the fringe of the Forest Reserve, the management of a nursery, and the distribution of seedlings to members and other farmers;
- the Dennery Watershed Management Action Force, a group formed out of a watershed management project implemented in 1996-1997 by the Government of St. Lucia with support from the UK Department for International Development.

The Department of Forest and Lands provides technical support to all community groups interested and involved in forestry projects.

Within the broad range of regional and international agencies involved in natural resource management in St. Lucia, there are three institutions which have direct relevance to and impact on the forestry sector:

- the Natural Resources Management Unit of the Organization of Eastern Caribbean States (OECS-NRMU) provides guidance and technical assistance to member states in a number of areas, including forestry. It also manages a regional programme called Environmental and Coastal Resources (ENCORE) which is funded by the US Agency for International Development, and which places emphasis on community-based approaches to the management of resources. One of the projects in which the ENCORE programme has been involved in St. Lucia, in collaboration with the Department of Forest and Lands, has been the establishment of a trail, on the south-west part of the island, with active participation from the local community of Fonds Gens Libres;
- the International Institute of Tropical Forestry, based in Puerto Rico, collaborates with the Department of Forest and Lands in St. Lucia in a number of areas, including research and training. It also convenes the annual meeting of Caribbean Foresters, which gives institutions and professionals a unique opportunity to share experiences and to establish linkages;
- the Caribbean Natural Resources Institute (CANARI), a regional non-governmental organization with offices in St. Lucia and St. Croix, U.S. Virgin Islands, is concerned with issues of conservation, environment and development in the insular Caribbean. Its mission is to create avenues for the equitable participation and effective collaboration of Caribbean communities and institutions in managing the use of natural resources critical to development. It seeks to achieve this mission through a programme of applied research, analysis and advocacy. CANARI provides support to a number of forest management initiatives in St. Lucia, particularly through a community forestry programme implemented in collaboration with the Department of Forest and Lands.

# 8. POLICY STUDIES

As noted earlier, the FAO carried out a review of forest policy in the eastern Caribbean in 1987 (FAO 1987), which led to a regional workshop on forestry, wildlife and national parks policy and legislation in the eastern Caribbean, which was held in St. Lucia. This study reviewed the status of forest policy, and made specific recommendations in that regard.

In 1987 and 1988, Island Resources Foundation, acting on behalf of the Caribbean Conservation Association, conducted a detailed review of environmental issues, policies and programmes, which led to the publication of a comprehensive Country Environmental Profile (CCA 1991). This study reviewed in some detail the policies, legal instruments and institutional arrangements in all relevant sectors, including forestry, wildlife and water management. It also provided specific policy recommendations in these sectors.

The purpose of the Country Environmental Profile was to meet the requirements of the United States Agency for International Development (AID), which stipulated that all countries that were recipient of its support should carry out such a study. For the Caribbean Conservation Association, Island Resources Foundation and the Government of St. Lucia, the study provided an opportunity to review the environmental sector and to define priorities for action.

With specific reference to the forestry sector, the study identified policy recommendations in four areas:

- research:
  - development of silvicultural prescriptions for existing plantations
  - development of silvicultural prescriptions for selected indigenous species
- forest conservation and development:
  - experimentation with agroforestry techniques
  - support for an integrated wood products industry
  - expansion of protected water catchment areas
  - management of private forests
- fuelwood:
  - evaluation of impact and growth rates to determine suitability of charcoal production to selected areas
  - development of plantations
- public support for forestry programmes:
  - expansion of facilities and programmes
  - targeting of effort towards St. Lucian audiences

In 1991, the FAO prepared a National Tropical Forestry Action Plan, which involved two studies related to policies (Balmforth 1991, McCalla 1991).

# 9. CONCLUSIONS AND RECOMMENDATIONS

The forestry sector in St. Lucia offers the exciting opportunity to study, document and analyze a rapid process of policy and institutional change and adaptation. It is indeed interesting to note that the forestry sector which the 1992-2002 management plan intended to manage (GOSL 1993) has, over the past six years, been subject to extremely rapid transformations. The threats of deforestation which were at the centre of the foresters' concerns in the early 1990s have been greatly reduced, because new world trading arrangements have made banana farming on steep hillsides unprofitable. The growth of tourism has increased the demand on a scarce water supply, and offers the opportunity to use the forest as an important element of the tourism product. The institution which was designed primarily to control squatting and to manage plantations now generates substantial revenue from tours and has the enormous responsibility of preserving the country's threatened and vital water supply. Forest management has become a multi-stakeholder, multi-sectoral undertaking, and St. Lucia's Chief Forest Officer is calling for new mechanisms for linkages, within and outside government, and for civil society input and participation into policy making.

In many respects, St. Lucia offers a representative example of the challenges of forest planning and management in a small tropical island. It is an example which should be monitored and documented, for the benefit of all those who are searching for the most appropriate ways to manage natural resources for sustainable development in the Caribbean region.

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# REVIEW OF FORESTRY POLICIES IN ST. VINCENT AND GRENADINES

**by K. King**

## 1. INTRODUCTION

### The Perception and Scope of Forestry

The State of St Vincent and the Grenadines is an archipelago of 32 islands and cays that are scattered in the Eastern Caribbean, and form part of the Windward Islands.

St Vincent, 18 miles long from North to South, and 11 miles at its widest, has an area of 133 square miles, and is the largest of the group. It is located about 13 degrees 9' North, and 61 degrees 14' West, and is a lush volcanic island of steep mountain ridges and valleys. The rugged eastern coast is lined with cliffs and rocky shores, while the western coastline plunges sharply down into sandy beaches.

The chain of smaller Grenadine islands, most of which are no longer than a few miles, lies to the south west of St Vincent. These islands have become physically degraded through the removal of their natural vegetation and the mining of limestone. The largest include Bequia, Mustique, Canouam, Palm, Petit St Vincent, Mayreau and Union.

An inventory of the natural forests of St Vincent was undertaken in 1992. This disclosed that the total area of forest land, at that time, was 12,689 hectares.

***Table 1 - Forest Land Classification and Areas (Ha)***

| | |
|---|---|
| Rain Forest | 7,759 |
| Dry Scrub Woodland | 2,179 |
| Palm Brake | 518 |
| Elfin Woodland | 457 |
| Regeneration | 1,776 |
| Total Forest Area | 12,689 |

Before this inventory was carried out, estimates of the area of the natural forests had been made in 1949 and 1984. In 1949, the forest area had been assessed to be 14,038 ha, and in 1984 it was estimated to be 13,200 ha. Estimates in 1997 indicate that the current forest area is in the vicinity of 12,000 ha. The steep increases in the rate of deforestation have, therefore, continued.

It will have been noted that about 14 percent of the forests have been classified as 'regeneration'. This type of forest occurs in areas which were naturally restocked after their devastation by a volcano in 1979.

Everyone with whom the topic was discussed in St Vincent perceived, in abstract, that forestry should be concerned with the provision of both goods and services. All were adamant, however, that the overwhelming objective of forestry in St Vincent should be, and indeed was, in practice, the conservation of forest ecosystems for the primary purposes of purifying and regulating water supplies and minimizing erosion.

Because much of the country is steep and rugged; because in a significant number of areas, soils are highly erodible; because the intensity of rainfall is often very high; and because most farming in the

island is undertaken in the valleys beneath the forested hills; agriculture depends, to a great extent, upon the very existence of the nurturing and protecting forests. In other words, the topography of the country, the nature of its climate and some of its soils, and the pattern of land use, all demand the concentration of forestry on the protective attributes and influences of the resource.

It should not be surprising, therefore, that successive Governments of St Vincent and the Grenadines have expressed concern over what they perceived as a deteriorating environment. Accordingly, as the 1980s drew to a close, significant steps were taken to focus public attention on environmental matters. In pursuance of this desire to educate the population with regard to the importance of the environment, a new Ministry of Health and the Environment was created.

The concept of the meaning and scope of forestry in St Vincent also includes the utilization of the forests for the provision of food and medicine, and the protection of the nation's biodiversity. It also embraces the establishment of forest plantations, the introduction of agroforestry systems on both private and state lands, the planting of shelter belts, and the encouragement of community forests. In all these endeavours, the Forestry Division is empowered to provide technical assistance to farmers and others in the private sector.

In addition, an increasingly important aspect of the country's growing tourist industry is the emphasis that is being placed on ecotourism. The concept of forestry has, therefore, been expanded in recent years to embrace the recreational attributes of forest ecosystems.

Moreover, although the felling and removal of trees for the production of a range of forest goods is to a large extent prohibited, the utilization of the forests for fuelwood and charcoal manufacture, and for the supply of timber to small farmers, is permitted, under carefully controlled conditions.

The administrative arrangements that have been made for conserving the nation's forests epitomize this concept of forestry. Thus watershed management, wildlife management, the establishments of national parks and protected areas, as well as some aspects of production, are all integral parts of the country's forestry administration.

In recent years, the economy of St Vincent seems to have fallen into disarray. In the past, the country which is predominantly agricultural, held a virtual monopoly of the world-market for arrowroot. However, as the demand for this commodity slackened, the cultivation of bananas became the main means of livelihood in the island, earning more foreign exchange than any other product, and employing more persons than any other sub-sector. Unfortunately, the contribution which bananas made to the economy was based, not so much on efficiency in production and on the competitiveness of the product, but more on the favourable trade conditions which it enjoyed in the European market.

It now appears that the terms of entry of St Vincent's bananas into Europe will soon be drastically amended. As, at least in the short-run, the prospects of increasing productivity sufficiently enough to make the industry competitive are dim, there is little doubt that hard economic times are ahead for St Vincent in the foreseeable future.

It must not be concluded, however, that the malaise in St Vincent's economy is entirely due to the removal of trade preferences. Between 1988 and 1992 the country experienced an annual rate of growth of GDP, in real terms, of five percent. In 1993, however, growth in real output in St Vincent and the Grenadines dropped to 1.4 percent. This decline in growth has continued through 1997. Although there was an increase in 1994 of 2.6 percent, this improvement was short-lived, as growth rates for 1995 and 1996 were, on average, about 1.5 percent.

The basic cause of this deterioration in the economy is the sharp drop in agricultural output which began in 1993. In that year, because of unfavourable weather conditions which exposed inept management and agricultural practices, there was a 4.6 percent decline in banana output. The effects of this staggering decrease were transmitted throughout the economy by the impact it exerted on income, employment, savings, and central government revenue.

Since then, as has been pointed out, it has been down-hill all the way. Cultivable acreages have contracted as marginal farmers abandoned production; the rate of unemployment rose to over 30 percent; and the trade deficit grew from US$270 million in 1990 to US$504 million in 1994.

Expenditure on the social services dropped significantly. The rate of literacy remains high, however, being about 89 percent in 1995.

# 2. CURRENT POLICIES

## The Forest Policy

The main document in which the Governments of St Vincent and the Grenadines enunciates the country's forestry policy is entitled The National Forest Policy. It is essentially an expression of the broad objectives which the Government intends to pursue in the country's forestry sector, and a listing of steps which it intends to take in order to realise these objectives. In short, it is what is generally described in the technical jargon of forestry, as a forest policy statement.

## The Content

### *Arrangement of Document*

This is a brief document in which, first, the overall goal of the National Forest Policy is described. Eight immediate objectives are then stated, with several means of attaining each objective listed beneath the particular objective. The term "objective", as used in this statement, may be interpreted as being synonymous with the word "policy" when applied to similar forest policy statements. In the same way, the activities which are listed below each policy statement may be likened to the strategies generally adumbrated in comparable documents.

### *Goal*

The goal of the National Forest Policy is the conservation, management, development, production and enhancement of the country's forest resources in harmony with national programmes and development plans.

**1. Increasing the contribution of the forestry sector to the country's social welfare and forest economy**

This objective is to be achieved through:

a. the encouragement of forestry activities which generate employment, increase income, and raise the standard of living;
b. the promotion of forestry and agroforestry practices in agricultural and other sectors, and the encouragement of proper forestry, agroforestry and management practices on private land through advice and assistance;
c. the encouragement of public participation in forestry decisions; and
d. the promotion of proper soil and conservation practices.

**2. Establishing, measuring and maintaining the Crown Forest Estate**

The strategy to be followed in the attainment of this objective is as follows:

a. prepare forest inventories, and demarcate and maintain forest boundaries;
b. control fires on Crown lands;
c. survey, establish, manage, develop and administer forest reserves, cooperative forests and conservation areas; and

d. develop and enforce adequate legislation to ensure the implementation of the Forest Resource Policy.

### 3. Managing the Crown Forest Estate

The management of the Crown Forests should be undertaken through:

a. the application of the "principle of multiple use and sustained yield" for the production of goods and services. It is emphasized that the objectives of environmental and watershed protection, recreation and research would be given the highest priority, and that timber production activities would only be undertaken to the extent that they do not jeopardize the achievement of the other objectives;
b. the application of silvicultural methods and techniques which will improve forest and vegetative communities, while providing minimum negative aesthetic and environmental effects;
c. the protection of planting stock for the reforestation and agro-forestation of Crown lands and for sale to the public;
d. the production of water resources throughout the country, in cooperation with the Central Water and Sewerage Authority and the St Vincent Electricity Services;
e. the preparation and implementation of the National Forest Resource conservation plan, individual forest management plans, and conservation plans;
f. the control and supervision of cutting, harvesting, milling and sale of timber and other forest produce, where the activity is conducted by government agencies;
g. the regulation of forestry activities in Crown Lands;
h. the issuance of licences and permits for the harvesting of forest produce; and
i. the prosecution of offenders against the forest law.

### 4. Developing forest industries

This objective is to be achieved through:

a. the collection and analysis of relevant data;
b. the sale of raw material to the private sector; and
c. the provision of technical assistance to the private sector so that it may be better able to manage its forest resources.

### 5. Providing areas and facilities for outdoor recreation, tourism, natural resource education and investigation, and the conservation of genetic resources and environmental protection

This multi-faceted objective is to be attained through:

a. the promotion and implementation of public educational programmes;
b. the maintenance of biological diversity;
c. the identification and delineation of suitable areas;
d. the establishment and maintenance of visitor facilities; and
e. the protection of the natural landscape for aesthetic reasons.

### 6. Protecting, managing and utilizing the wild flora and fauna occurring naturally in Crown and private lands, which have economic, scientific, aesthetic or cultural values

The strategy which is proposed in order to implement this policy statement embraces:

a. the preparation of inventories of the various species;
b. the authorization and control of the exploitation of wild flora and fauna on both public and private lands;
c. the control of national and international commerce in protected species;
d. the control of the introduction of exotic species; and
e. the management in selected areas of valuable species of wild fauna.

7. **Establishing and utilizing facilities for the education and training of personnel in the private and public sectors, in the management, development and use of the natural resources within the forest estate**

This is to be done through:

a. the provision of funds; and
b. the provision of opportunities for on-the-job training.

8. **Executing and promoting research**

This is to be achieved through conducting applied agroforestry, silvicultural and utilization research; and through the management of private sector research activities by providing technical assistance.

# Policy Review

## *Character of the Document*

It is emphasized that the document is a mere statement of the Government's intentions, to which are appended lists of the steps which ought to be taken to realise these intentions. This, in itself, might not be considered a defect, for there are in existence many forestry policies which are presented in this manner. The forestry policy of St Vincent and the Grenadines suffers, however, from a few deficiencies which it might be useful to point out at this stage.

First, the document sometimes confuses objectives with the means of attaining these objectives. For example, one of the stated objectives is "to establish, measure and maintain the Crown Forest Estate". This, however, appears to be one of the activities which should be undertaken to achieve the broad forest management and conservation policies, rather than an objective in itself. Other illustrations of this failure to distinguish policy from strategy may be provided, but it is not intended to belabour this point. It is mentioned merely to indicate that the document has to be interpreted with care, by those who are mandated to implement it, if rational decisions are to be taken.

Secondly, the document is somewhat weak in some areas. This is particularly true with respect to the development of forest industries, where the provisions appear to be decidedly unprofessional. To be fair, however, this may be a reflection more on the thrust of the policy, rather than on the expertise of its drafters. It has to be emphasized, nevertheless, that nothing in that section of the document relates to the policy per se. The focus is on the resource base. No incentives or disincentives are prescribed, nor is technical assistance to be given in forest industrial matters.

Thirdly, little or no reference is made to the institutions which might be necessary to ensure the implementation of the policies and strategies. There is no mention of the type of legislation to be enacted, or indeed of the need to enact such legislation; nor is there any statement with respect to the administrative structures to be put in place to manage the many tasks assigned to the public sector.

## *Policy Originators*

In 1989, the Government of St Vincent and the Grenadines entered into an agreement with the Canadian International Development Agency (CIDA) to provide technical assistance to the country's forestry sector, in a number of areas. The most relevant of these are:

(i) to assist in the preparation of a forest policy statement;
(ii) to assist in the drafting of forestry legislation; and
(iii) to assist in the formulation of a National Forest Resource Conservation Plan.

The originator of the current National Forest Policy is, therefore, the Government of St Vincent and the Grenadines, with the assistance of CIDA.

It should be noted, however, that recommendations for forest policy statements had been prepared by the British, by the Food and Agriculture Organization, and by the drafters of a National Forestry Action Plan for example, in previous years. The CIDA authorities who, together with the St Vincent Forestry Division, put up the first draft of the existing policy, relied heavily on these earlier documents.

## Policy Makers' Intention

Throughout the 20th century, it has been the policy of successive Governments of St Vincent and the Grenadines to conserve the country's forests, primarily for the ecological services which they are capable of providing, and for their aesthetic value.

Indeed, by Proclamation dated 22 August, 1912, the Governor in Council reserved all the Crown Lands above 1,000 feet in St Vincent from *"any administration or disposal thereof that would be prejudicial to the conservation of the forest growing or to grow thereon"*.

The intention of the makers of this current policy is in keeping with this laudable tradition. Although the document does not clearly spell out their intention, it is clear from a perusal of the statement that the purpose of the document is to place the basic principles, which had for so long guided and underpinned St Vincent's forestry, within a modern context. Thus, it is stated, unequivocally, that "objectives of environmental and watershed protection, recreation, education and research" will be given the highest priority. Timber production activities will only be undertaken to the extent that they do not interfere or jeopardize the achievement of the previously mentioned objectives.

The policy makers also intended that the statement would be part of a comprehensive package which would also include new legislation and a new forestry development plan. They intended, that, together, these documents would provide the foundation for the development of forestry in St Vincent.

## Issues and Problems

Certain issues and problems have been identified through analyses of the literature pertaining to forestry and related disciplines in St Vincent, and from discussions with representatives of a range of stakeholders in these areas. These are as follows:

(i) assessing forestry's contributions to socio-economic development;
(ii) the legal status of the Forestry Division;
(iii) concurrent jurisdictions over forestry;
(iv) staffing of the Forestry Service; and
(v) deforestation.

None of these problems were tackled frontally in the forest policy statement.

## Policy Formulation Processes

The processes which were utilized in formulating St Vincent's forest policies will be discussed in detail in section 4. In that section, also, the experts, interested groups and agencies that were involved in the formulation of the policies will be described.

## Implementation

No provisions were made in the document for the implementation of the policies and strategies that were prescribed. Indeed, as has been pointed out, no mention was even made of the need to enact legislation, restructure administrative organizations, and provide funding. However, the Government of St Vincent passed relevant forestry legislation in 1992, and published a National Forest Resources Conservation Plan in 1994. These, to a large extent, provide for the implementation of the policies.

## Constraints

The main constraints in the implementation of the policies which have been adumbrated in the statement are a shortage of adequately trained personnel in the Forestry Division, the inadequacy of funds for the proper execution of the Division's duties, and the conflict of interests among the different land-administrating Government Departments.

Assistance is urgently needed for scholarships for the training of national resources personnel in the gamut of disciplines, at all levels. An expert is also required to rationalize the various laws and administrative organizations pertaining to natural resources policy formulation and management.

The most important constraint, however, is the weakness of the economy. With the almost inevitable fall in revenues, it would be difficult for the Government to increase expenditure on the Forestry Service. It is also extremely probable that the growing army of unemployed would seek occupation on the fragile watersheds of the forest estate. Indeed, this degradation of forest ecosystems has already begun.

## Beneficiaries

All the citizens of St Vincent should benefit from the conservation of its forest resources, if the policies enunciated in the National Forest Policy Statement are implemented. Pure and regular water supplies will be assured, farming in the valleys will be protected from floods and droughts, and the burgeoning eco-tourist industry would profit from the scenic and recreational values of the forests.

## Linkages with National Goals and Macro Policies

Although no explicit linkages have been established with national goals and macro policies in the forest policy document itself, the statement, throughout its drafting stages, had been subjected to scrutiny by the Central Planning Division. One of the main objectives of the clearance procedure by the Central Planning Division was precisely to ensure that the policy was in conformity with national objectives. Moreover, when the forest policy declaration was eventually published as part of the National Forest Resource Conversion Plan, it again received the imprimatur of the Central Planning Division and, indeed, of the Cabinet.

## Mechanisms for identifying, considering and coordinating linkages

As has already been pointed out, this statement is extremely deficient in the provisions it makes for the administration and implementation of the policies and strategies it has established. The situation is not one of complete gloom, however. Later publications by the Government have attempted, in some small measure, to put in place coordinating mechanisms.

## *The Forest Resource Conservation Act*

It was evident to the Government of St Vincent and the Grenadines that the forest policy, by itself, was not a sufficiently comprehensive document for forest policy implementation. Accordingly, in 1992, it enacted the Forest Resource Conservation Act, No 47.

## *The Content of the Act*

### Arrangement of Document

The Act is divided into ten parts. Part I deals with what are described as Preliminary matters. These are a statement concerning the title of the Act and its environment, and defines key words and phrases that are employed in the Act. Part II is devoted to the Administration of forestry: to the establishment of the Forestry Department, the functions of the Director of Forestry, and the preparation of a National Forest Resource Conservation Plan. Part III is concerned with the declaration of Forest Reserves, the leasing of forest reserves, the establishment of Protected Areas, and the formulation of Forest Management plans. In Part IV, Cooperative Forestry is dealt with, while in Part V, the procedures in respect of the Declaration of Conservation Areas are examined. Part VI provides for the establishment of a Forestry Development Fund. Parts VII, VIII and IX deal respectively with such routine matters as the Prevention and Control of Fire, the Issuance of Licences and Permits, and the Power of Officers. Part X, which is entitled Miscellaneous, encompasses the laws relating to a variety of offences, and also the power to make regulations.

### Objective

The purpose of the Act is to make provision for the conservation, management and proper use of the forests and watersheds, the declaration of forest reserves, cooperative forests and conservation areas, the prevention and control of forest fires, and for matters connected with those issues.

### Administration

The Act is quite specific that there shall be established a Department of Government to be called the Forestry Department. It also unequivocally states that the Department shall be headed by a Director of Forestry whose prescribed functions are all-embracing. The Act, of course, authorizes the Director to instruct his staff, as he deems fit, to assist in discharging these functions.

The Director is also enjoined to prepare and submit to the Minister, for the approval of Cabinet, at intervals not exceeding ten (10) years, a National Forest Resource Conservation Plan, which shall cover the next ten-year period. Prior to transmitting the conservation plan to the Minister, the Director must submit it to the Department of Agriculture, the Central Planning Division, the Central Water and Sewerage Authority, the St Vincent Electricity Services, and the National Trust. The Director must also hold at least one public meeting to discuss the Plan.

### Forest Reserves

The Minister is given authority to declare forest reserves for any of the following purposes: sustained production of timber and water, soil conservation, public recreation, and the preservation of flora and fauna.

A sort of negative authority is provided to lease forest reserves: no land may be leased unless it is in the public interest and the term of lease does not exceed five years.

Protected areas may also be established within forest reserves, and forest management plans must be prepared for each reserve.

### Cooperative Forests

The Minister may enter into agreements with owners of private land to declare such land a cooperative forest. The cost of any technical assistance provided by the Government in the administration, planning and management of the cooperatives, should be reimbursed by the owners.

### Conservation Areas

In addition to the power which the Minister possesses to establish forest reserves, he has the right, under the Act, to declare any area of land, whether public or private, to be a conservation area. Conservation areas may be declared if the area requires the implementation of conservation measures to maintain (a) a clean and reliable supply of water; and (b) soil and water resources in a productive state for agricultural development. Areas may also be declared conservation areas if they are in an unstable state, and are located above roads, along river banks, or near residential or industrial areas; or if their water resources are in a polluted condition.

The Minister is obliged, by Section 21(1) of the Act, to publicly declare his intentions to establish a conservation area before actually proceeding to do so. He is also required to hold one or more public meetings at locations where residents may comment on the proposals. These comments must be taken into account in preparing the final order of declaration.

The Minister is also given the authority to appoint local conservation councils which are required to monitor the condition of the natural resources of the area.

The Director of Forestry, in collaboration with particular councils, may prepare conservation management plans. Authority is also provided to establish conservation area funds for the purpose of educating and providing incentives to the public, and for defraying conservation expenses.

And, finally, the Minister is mandated to offer, regularly, programmes of technical assistance and training in proper land use, management and conservation, to owners or occupiers of private land and lease-holders of Crown Land in a conservation area.

### Forestry Development Fund

The Act requires the establishment of a Fund, to be administered by the Director of Forestry, to be used for such matters as reforestation, the purchase of private lands for forest reserves and other protected areas, and the execution of water and soil conservation measures.

## *Policy Review*

### Character of Document

Many of the strategies which are usually adumbrated in forestry policy statements, but which were omitted from the National Forest Policy of St Vincent and the Grenadines, are contained in the Forest Resource Conservation Act. It is primarily for this reason that the Act is considered a policy document. Moreover, the document, even more than the National Forest Policy, lays down the means to be employed in the implementation of the policy and strategies; the administrative structures to be put in place; and the type of funds which should be established to ensure the execution of the strategies.

The document may therefore be characterized as one which embodies policies in a legal format.

### Policy Originators

This law was prepared as part of the agreement which was entered into between the Government of St Vincent and CIDA in 1989. Both parties to the contract may, therefore, be described as the originators. The law itself is based in part on recommendations which had been put up by consultants sponsored by the Food and Agriculture Organization.

### Policy Makers' Intention

As has been already emphasized, this Act is one of three instruments that are designed together to ensure that the forest resources of St Vincent are managed in such a manner that they would provide certain basic services, such as erosion control and water-supply regulation.

The policy makers' intention in this particular document is to supplement the National Forest Policy, not only with a more detailed strategy of implementation, but also with the necessary legal and institutional support.

It should be evident that, as the Forest Resources Conservation Act is an integral part of a set of three policy instruments which should be examined together, if the forestry policies of St Vincent are to be fully appreciated, its execution might be retarded by the same constraints which would apply to the implementation of the National Policy and indeed to the National Forest Resource Conservation Plan. The issues and problems, beneficiaries, linkages with national goals and the mechanisms for coordinating them, would also be similar.

### National Forest Resource Conservation Plan - 1994 to 2003

This National Forest Resource Conservation Plan, for the period 1994 to 2003, was prepared in accordance with the provisions of Section 6 of the Forest Resources Conservation Act, No 47 of 1992. It arises from one instrument of policy and is, at the same time, itself such an instrument.

## *The Content of the Forest Resources Plan*

### Arrangement of Document

The document is presented is seven sections. Section 1 is introductory. In Section 2, the main topics of the National Forest Policy and relevant legislation are listed. In Section 3, which deals with St Vincent's Forest Resources, the amount, condition and status of these resources are described; both the demand for, and threats to these resources are examined; and measures to conserve and develop them are proposed. Sections 4 and 5 are devoted to Water Resources and Soils, and Wildlife and Recreation, respectively. Both sections follow the same format as described for Section 3. Section 6 considers the subject of Forestry Administration. In it the existing staffing situation is described; staffing proposals are made for the future; inter-governmental and community linkages are listed; and estimates of Funding Requirements are presented. Section 7 contains a Provisional Action Plan, the details of which are put forward in an Appendix.

### National Forest Policy and Relevant Legislation

The document summarizes the objectives of the National Forest Policy which have already been described in great detail in this Report. It also lists the legislation that is relevant to the country's Forest Resource Conservation Policy and sketches, in particular, the provisions of the Forest Resource Conservation Act.

**Forest Resources**

In 1994, when the Plan was published, there was only one gazetted Forest Reserve in the nation. This had been set aside as far back as 1791. Although others had been declared by the Crown Lands Forest Resource (Declaration) Order of 1948, they had not been gazetted, and had not, therefore, acquired the legal status of Reserves.

In addition, although Proclamation No 12 of 1946 had declared as a Reserve "all that area of Crown Land lying upon the central main ridge and mountains interior of the island to the south of the Wallibou and Rabacca Rivers", only a relatively small proportion had been declared to be Forest Reserves in the Forest Resource Conservation Act.

The document points out that in addition to the country's natural forests, there were, in 1994, 174 ha of forest plantations in the country, some over 30 years old. Growth rates had been such that a considerable volume was available for local consumption, and could partially offset the demand for imported wood.

St Vincent and the Grenadines has traditionally relied on wood and wood products for energy, house construction, and boat building. The forests are a source of firewood for domestic use, and for charcoal making, fence and shed posts, fodder for livestock, roots for basket making and domestic use, and herbs for making teas and juices and for curing illness. The forests also supply services such as hiking, camping, fishing, hunting and visual enjoyment.

Local wood production, principally lumber for furniture, had stagnated at 1,000 cubic metres annually in 1994, while imports had grown from EC$13,652,000 in 1983 to EC$42,378,000 in 1990.

The document stresses that clearing the forest is seen by the public at large as a genuine opportunity to acquire a small area on which to settle, or to raise subsistence crops. This leads to forest destruction, and is more important than the illegal harvesting of wood.

The document emphasizes the lack of forest industrial organization in St Vincent: there were no formal marketing channels, there was no register of secondary wood processing industries, and furniture manufacturers were poorly equipped and had only a semi-skilled workforce.

The measures which are proposed to conserve and develop the country's forest resources include the establishment and maintenance of forest reserves, the involvement of the rural public through social forestry and extension, and the establishment of plantations.

The basic proposal, to relieve the drain on the national forests and also on the country's scarce foreign exchange resources, is two-pronged. First, the substitution of fuelwood which is now taken from the national forests, by production on private lands or from community woodlots. Second, the replacement of lumber now removed from the national forests, and imported wood and wood products, by production from a local, commercial plantation base.

**Water Resources**

St Vincent's drinking water comes from the forested upper reaches of thirteen major watersheds. The Forestry Service, therefore, in support of the Central Water and Sewerage Authority (CWSA), plays an important role in water development and management. It should be noted, however, that in general, dependence on the water drawn directly from the rivers and streams is dropping in favour of piped water which has its intake half way up the valleys. However, wood fuel is being displaced by electricity generated from water taken from the rivers.

There are three immediate threats to the water supply: sedimentation through erosion occasioned by inappropriate land use practices; contamination of water supplies by agricultural chemicals; and the washing of farm chemical equipment and animals on the river banks formerly reserved for human kind.

Among the measures to conserve and develop water resources that are proposed, is the development of a model watershed management plan for a critical area of the country.

**Soils, Wildlife and Recreation**

The mountain soils of St Vincent are vulnerable to erosion by tropical rainfall when unprotected by vegetative cover. Sheet erosion is common in cleared areas. Current up slope forest clearing has been aggravated by increases in banana production. As this crop does not provide good ground cover, the incidence of erosion has increased.

No definitive inventories of St Vincent's wildlife are available. It is known, however, that animal species have never been abundant on the island, and that most of the present animal population consists of introduced species. However, the existing wildlife now falls victim to the expansion of human activities, as the natural habitat disappears.

The proposals that are put forward to prevent or minimize the current and potential threats to soils, wildlife and recreation embrace protecting the natural forests, rehabilitating degraded lands; introducing alternative methods of multiple land-use, which involve various combinations of agroforestry practices, conserving wildlife habitats, and undertaking inventories of the country's natural resource attractions with a view to planing their management and conservation. In particular, environmental impact assessments of tourism development on the forest resources should be made.

**Forestry Administration**

The publication stresses that under the Forest Resource Conservation Act, forest administration is to be undertaken by a "Department of Government to be called the Forestry Department". It emphasizes that in order to carry out its broad mandate of forest protection, conservation, and management, some restructuring is necessary. It, therefore, makes proposals for changes which should be gradually introduced over the ten-year period of the plan, according to which the total number of full time employees would increase from 31 to 40, the main increases being in the Forestry Supervisor's grade and in the number of forestry officers-in-training.

It also recommends that, in conjunction with the proposed organizational changes, farmers and the private sector should be encouraged to become more involved in establishing and utilizing the forest resource. This, it claims, would reduce the new Forestry Department's involvement, in many forestry activities, to a management, advisory and supervisory role.

The plan underlines the importance of inter-governmental and community linkages, and draws up a schema which depicts the links of the forestry sector to national and regional development organizations.

There is then a listing of priority activities in the process of restructuring. The importance of training is emphasized. This section of the plan ends with proposals for the funding of the new reorganized Forestry Department. It assumes that the Department's potential to generate income is low, and thus concludes that its functioning would primarily depend on funding from the Central Government.

***Table 2: Linds of the Forestry Sector to National and Regional Development Organizations***

| Sector | Organization/Activity |
|---|---|
| Finance and Planning | Central Planning Division/Physical Planning Unit<br>Physical Planning and Development Board<br>Planning and Priorities Committee<br>Smallholder Crop Improvement and Marketing Project<br>ARDP |
| Agriculture | Extension Advisory Services<br>Lands and Surveys Department<br>Soil and Water Conservation Unit<br>Tree Crop Development Unit<br>National Trust<br>Pesticide Control Board |
| Labour | Employment, statistics training |
| Trade and Tourism | Nature recreation, ecotourism, craft market surveys and marketing, beautification |
| Private Sector/Industry | Production of raw materials, manufacture, construction, training, financing, publication, broadcasting |
| Education, Youth and Women's Affairs | Schools, teacher training, curriculum development, national library service, women in forestry, national training programmes |
| Ministry of Health | Central Water and Sewerage Authority |
| Energy | St. Vincent Electricity Services Ltd. |
| Health and the Environment | Public Health<br>Environmental Protection Task Force<br>Environmental Management, national coordinating and monitoring |
| Housing, Local Government & Community Development | Community organization, skills training, craft production, raw material acquisition |
| Justice, Information and Culture | Department of Culture<br>Documentation, publication of information and broadcasts<br>Legislation and Enforcement |
| NGOs | Planning, financing, implementing, monitoring |
| Farming<br>Banana growing | Farmers Union<br>Banana Growers Union |

## ***Policy Review***

### Character of the Document

Although the Government describes the document as a National Forest Resource Conservation Plan, it is also a statement of policy with respect to the conservation of the forest patrimony and the strategy which should be followed to implement the policy. It therefore supplements the National Forest Policy which has been described earlier. This is particularly evident in the area of Forestry Administration, but it applies also to the document's detailed treatment of forest, water, and soil resources policy and strategy.

In short, it cannot be too strongly emphasized that the forestry policy of St Vincent and the Grenadines are to be found in three documents: the National Forest Policy, the Forest Resource Conservation Act, and this Conservation Plan.

### Policy Originators

Like the National Forest Policy and the Forest Resource Conservation Act, the plan is an outcome of the agreement between the Government and CIDA, both of whom may be described as its originators.

Consultants employed by CIDA actually put up the first draft. The plan owes its legal origin to the Conservation Act which stipulated that such a plan should be formulated every ten years.

**Policy Makers' Intention**

Section 6 of the Forest Resources Conservation Act, Act No 47 of 1992 states, inter alia, that 'the purpose of the conservation plan shall be to coordinate activities on all forest reserves, conservation areas and cooperative forest.' This is the main intention of the policy makers. However, in the plan itself, a subsidiary intention, to manage the forest, water and soil resources 'on a sustainable basis,' is also expressed.

**Issues and Problems**

There are no special issues and problems not related to those already mentioned when discussing the National Forest Policy.

**Constraints**

The main constraints to the implementation of the plan are the dearth of experienced qualified staff, not only in the Forestry Division, but also in the other organizations that benefit from and utilize, the services which the forests provide and to which there are few formal linkages; the inadequacy of available financial resources; and, perhaps most important, the possibility that the country's economy would continue to decline. This last constraint pervades everything. It affects the recruitment and training of personnel, the provision of funds to execute the Plan; and it increases the risk of encroachment on the forest estate from the rapidly growing ranks of the unemployed.

**Beneficiaries**

If the targets that are stated in the Plan are achieved, the entire nation would benefit.

**Linkages with National goals and Macro Policies**

Surprisingly for an exercise of this sort, no overt attempt was made to formulate the Plan within the context of national goals, and with national macro policies as a working framework. However, although no formal linkages with national goals and policies were established and described within the Plan itself, the document was reviewed by the Central Planing Division and the Cabinet, and therefore, presumably conforms with national objectives.

**Mechanisms for identifying, considering and coordinating linkages**

In Table 2, the multiplicity of links of the forestry sector to national and regional development organizations is graphically portrayed. No formal mechanism has, however, been established, except with respect to the St Vincent Electricity Services, Ltd. Even in this isolated example, however, the mechanism appears to be inadequate, for it is the Chief Agricultural Officer who represents the Forestry Division on the Electricity Board, and not the Director of the Forestry Division. More reprehensibly, it has been alleged that the Forestry Division is not consulted on agenda items pertaining to forestry to be discussed by the Board.

# 3. EMERGING AND CURRENT ISSUES AND PROBLEMS

## Assessing forestry's contributions to socio-economic development

If the standard methodologies that are used by governments in estimating the contributions of various sectors of the economy to the Gross Domestic Product are employed, the role of forestry in the nations socio-economic development in St Vincent would be considered to be abysmally low. This is patently absurd in a country such as this. Indeed, this absurdity is admitted by all, including officials of the State Planning Division who were interviewed in St Vincent during the period when this report was being prepared.

However, because it appears, that to some extent, the contribution of a sector to GDP is taken into account when allocating resources to various government ministries and organizations, the Forestry Division seems to be short-changed in financial resources. This, of course, directly affects its effectiveness, adversely influences the conservation of forest, soil and water, and hampers the socio-economic development of the country. Officials of the Forestry Division are very much concerned about this.

St Vincent Electricity Services have unofficially indicated that they would be willing to pay a fee for the services of the Forestry Division if a quantified case is put forward.

The State Planning Division has also expressed the view that the Government would welcome advice on an appropriate methodology for assessing forestry's contribution to GDP in St Vincent.

## The Legal Status of the Forestry Division

Section 3 of Act No.47 of 1992, the Forest Resource Conservation Act, 1992, which was assented to on 15 July, 1992, states as follows: "There shall be established a department of Government to be called the Forestry Department."

Section 4 (1) reads: *"For the administration of the Forestry Department, the Public Service Commission may appoint: (a) a Director of Forestry"*

Although Section 4(I) is discretionary, Section 3 is mandatory and quite explicit. Yet, nearly six years after the Forest Resource Conservation Act's enactment and approval, a Forestry Department has not been established and the administration of forestry still flows from a Division within the Department of Agriculture.

Apart from the administrative deficiencies in policy implementation which may arise from this arrangement, it is most likely that the actions of the Forestry Division, since July 1992, might have no legal validity.

This legal conundrum is compounded by the fact that although section 57 of the Act authorizes the Minister to make regulations without which many of its prescriptions cannot be executed, and although draft regulations were formulated in February, 1994, these Regulations have not been officially approved.

Senior officials of the Government, with whom these matters were discussed, were of the opinion that as the regulations were included in an official plan they were of legal validity. This is doubtful. No explanation was given for the failure to upgrade the Forestry Division to a Department.

## Concurrent jurisdictions over forestry

As has been described, the powers and authority of the Forestry Administration in the conservation and management of the forest resources of St Vincent are wide. In some circumstances, however, the St Vincent Electricity Services are themselves authorized to perform certain acts, the responsibility for which has also been entrusted to the Forestry Division.

In practice, because there is excellent cooperation at all levels, between Forestry and Electricity, potential conflicts have been avoided. There have been instances, however, in which forestry activities have been undertaken by St Vincent Electricity Services without the knowledge and concurrence of the forestry authorities.

## Staffing of the Forestry Service

It will be recalled that the National Forest Resource Conservation Plan, which was approved by the Government of St Vincent and the Grenadines in March, 1994, recommended the upgrading of the staff of the proposed forestry Department, and an increase in their numbers.

While a not insignificant number of professional and technical staff has indeed been trained, the rate of increase in the number of staff, it is argued by officials of the Forestry Division, has not kept pace with the relevant schedules of the Plan. Senior officials of the Ministry of Agriculture refute this allegation. They state that an increased number of staff has been provided, but that a small, developing country such as St Vincent, simply cannot afford the many specialists demanded by the Plan. This, they claimed, was especially true because although from time to time such specialists were indeed needed, they were unoccupied for long periods because there was little work for them, throughout the year, in their areas of specialization. The officers of the Forestry Division do not agree. Furthermore, they assert that even when Parliament approves positions for Forestry and votes the required funds, these resources are utilized for the funding of officers in other posts of the Ministry of Agriculture.

## Deforestation

This is the big forestry problem in St Vincent, and has been alluded to in other parts of this Report. Every stakeholder with whom forestry was discussed in the country emphasized its importance.

There is little doubt that the existing laws are more than adequate for the protection of the forest estate. It is also true that the proposed administrative organization, if implemented, would establish a system for the proper monitoring and control of illegal encroachment of the forest estate. However, as we have seen, the Forestry Service is short of staff. It is also short of vehicles adequately to patrol the forest, and of implements of protection.

This last point is of particular importance, for it has been reported that with the growing decline of the banana industry, forests are being razed to the ground by marijuana growers who are often intimidatingly armed.

The cause-effect relationship of national and individual poverty, unemployment, and forest ecosystem degradation is an almost intractable problem for St Vincent.

# 4. PROCESSES AND MECHANISMS OF POLICY FORMATION

The processes and mechanisms that were followed in the formation of the three policy pronouncements that are being discussed in this Report will be considered together because they have a common origin and are part of a logical sequence. The sequence began with the formulation of

the forest policy, and was followed by the enactment of legislation which was designed to ensure that adequate institutional arrangements were made to implement the policy. The legislation, in its turn, mandated that ten-year plans be drawn up for the management and conservation of the forest resource.

## Issue Search and Agenda Setting

Successive Governments of St Vincent had long been aware that there was need to formulate new policies for the country's forestry sector. They had, accordingly, sought and obtained assistance from the Food and Agriculture Organization and other international and bi-lateral agencies. Several reports from FAO highlighted the issues and, to some extent, set the agenda for the studies that are being discussed here.

The Government of St Vincent then entered into an agreement with CIDA which required, as a first step, the formulation of a forestry policy. CIDA recruited consultants who, together with the Forestry Division in particular and the Government in general, utilized the available reports to redefine the issues and establish the agenda.

## Deciding on the process to be followed

The leader of the CIDA technical assistance project held discussions with the Ministry of Agriculture, Industry and Labour and with the Forestry Division, to determine the process to be followed.

## Defining Issues and Establishing Objectives and Priorities

It was agreed, with respect to the formulation of the National Forest Policy, that papers which stated the issues, suggested the objectives to be aimed at, presented options for their attainment, and recommended priorities, would be prepared by CIDA specialists, after consultation with relevant officials, NGOs, and private sector representatives.

These draft papers were then circulated to the professional staff of the Forestry Division, the Department of Agriculture, the Central Water and Sewerage Unit, St Vincent Electricity Services, the National Trust, the National Planning Division and private conservation organizations for comment.

A final draft, which incorporated the advice tendered by the organizations consulted, was then prepared by the CIDA group. This was then submitted to the Minister of Agriculture who, after minor amendments, transmitted it to Cabinet where it was approved.

Another set of CIDA experts was responsible for the drafting of the Resource Conservation Act. Here again there was extensive consultation with representatives of all the stakeholders. However, the legal officers of the Government were required to review the proposed legislation to ensure that it conformed with St Vincentian law, before presentation to the Minister of Agriculture, and through him to Cabinet for approval. It was then discussed in Parliament, where it was approved. It is important to note that Parliamentary approval was obtained with little or no dissent.

This process was repeated in the preparation of the National Forest Resource Conservation Plan. This Plan drew on the findings of all the work of the CIDA project, as well as on recommendations of the National Forestry Action Plan, prepared by the CIDA Country Mission Team, and a Tropical Forestry Action Programme (TFAP) which was prepared by a Mission which visited the country in November-December, 1992.

## Policy Implementation Monitoring and Control

As has been already noted, the Forestry Division is already in the process of expansion. In addition, forest resource legislation has been enacted, and forest regulations have been drafted to give legal authority to the policy and to the administration. The systems to implement, monitor and control the policy are, therefore, in place. The problematics of staff quantity and quality, and of the legal validity of the administration, have already been discussed.

## Evaluation and Review

No mechanisms were established in any of the documents for the evaluation and review of any of the policies, strategies and processes adumbrated in the three documents. Nevertheless, some self-evaluation and review has been undertaken by the Forestry Division itself, for the preparation of its annual reports. The Ministry of Agriculture and the Forestry Division are, also, both aware that it is their duty to review and evaluate performance, and indeed, they have already done so.

# 5. ST VINCENT'S FORESTRY POTENTIAL

As has been described, because of the country's topography, its relatively fragile soils, and its sometimes intense rainfall, St Vincent's forests play a vital role in minimizing erosion, in regulating and purifying the supply of water, and in providing a scenic and aesthetic retreat for eco-tourists. Indeed, so many of the ecosystems are vulnerable that the felling of trees in the natural forests for wood production has virtually been banned. It is difficult, therefore, to make an assessment of the country's total forestry potential in the conventional manner of quantifying its future demand for wood and wood products.

It should, therefore, perhaps not be surprising that no reference whatever has been made in the National Forest Resource Conservation Plan, which was prepared in 1994, to this aspect of forestry. Indeed, no attempt was made to quantify and project incomes in the document, although much effort was devoted to quantifying and forecasting expenditure.

Even though the methodologies exist for quantifying the possible contributions of the forests in providing a range of services, neither this consultant's terms of reference nor the time available permitted such an exercise. What follows, therefore, is mainly a qualitative expression of the country's forestry potential.

But first some quantifiable matters. It has been estimated that between 2,000 and 3,000 cubic metres will be available for local consumption from existing forest plantations, from 1995 onwards. Thus, it would be possible, not only to earn directly a not inconsiderable amount of money but, on the basis of prices now spent on imports, to save about US$500,000 annually in foreign exchange.

In addition, the National Development Plan for 1991 to 1995 explicitly states that the forestry sector, which it assesses as having made an average contribution to GDP of about 1 percent during the proceeding decade, will be developed to allow sustainable agroforestry, which would provide wood and tree crops for local consumption. This is an important prescription which, as has been pointed out, could not only relieve the forest from the pressures of the encroachers, but would also conserve ecosystems, and supply food and wood, at one and the same time. When it is recalled that the value of imported roundwood alone, for posts and poles, in 1995, was in the order of EC $3,000,000, the possible contribution to the economy from both forest and agroforestry plantations will be appreciated. Indeed, based on forecasts of the extent of land which would be available in the near future, and on current rates of growth in existing plantations, it is evident that the current import bill for roundwood can be reduced by about 50 percent in the next decade or so.

This assessment does not take into account the high expenditure of foreign exchange in sawn lumber which was only just under EC $3 million in 1995. In two decades or so, most, if not all, of this amount can be supplied by a well-planned programme of plantation establishment.

Moreover, this suggestion of a partial substitution of imports by locally produced logs and lumber, if implemented, would considerably improve the current employment rate of about 2,000.

In addition, the volume of lumber which was reported to have been imported in 1995 was about 10,000 cubic metres. At the current rates of growth of 48 plantations of known age in St Vincent, it is possible that a mere 1,500 hectares (a little more than one-quarter of the area now occupied by the banana crop) would produce the equivalent of all sawn lumber imports.

In short, a well-planned and properly executed plantation forestry programme would do much to alleviate unemployment, increase incomes and save foreign exchange. Therefore, although the protective services of the forest should remain a priority, more emphasis should be placed on the establishment of a range of plantations by the Forestry Division, the private sector, and the community. This should be preceded by the preparation of a land-use plan and the concurrent expansion of species trials. The structure and staffing of the Forestry Service should also be changed to accommodate this new emphasis.

It is not only in production forestry, however, that there are viable prospects for St Vincent's forestry, and for an increase in revenue to St Vincent's Forestry Division. The qualitative benefits which accrue from the Division's activities in watershed management should be expressed in the future in quantitative terms, and demands made either on the Government or on the St Vincent Electricity Service for payment of the benefits.

The development plan also posits an expansion of eco-tourism. Indeed, tourism is already one of the strongest growth areas in the St Vincent and Grenadines economy, with net earnings of 10 percent of Gross Domestic Product. This applies to tourism in general. Increasingly, however, the share of eco-tourism in the total tourism package is growing. Much of this growth is due to the attractions which the forests offer. Here again, a comprehensive quantification of forestry's share should be carried out.

## 6. INSTITUTIONAL ARRANGEMENTS

St Vincent and the Grenadines is a member of the Commonwealth, the titular head of which is the Queen of England. St Vincent's Head of State, the Governor General, is appointed by the Queen on the recommendation of the Prime Minister, who is the Head of Government. The country is a secular, democratic state.

St Vincent's Cabinet, which consists of the Prime Minister and such other Ministers as he may appoint, acts and advises the Prime Minister on the governance of the country. The Prime Minister assigns to Ministers responsibility for the business of the Government, including the administration of Departments.

At present, ministerial responsibility for forestry is assigned to the Minister who has been given overall charge of the Ministry of Agriculture, Industry and Labour (MAIL). This Ministry comprises three departments: the Department of Agriculture, the Department of Industry, and the Department of Labour. Each Department includes a number of Divisions, the Forestry Division being one such. It is located in the Department of Agriculture which is led by a Chief Agricultural officer to whom the Head of the Forestry Division, the Director of Forestry, reports.

In 1994, the Government of St Vincent and the Grenadines accepted a proposal by the CIDA project that, in order to carry out the broad mandate of forest protection, conservation and management, some restructuring of the forestry administration was necessary.

The CIDA project pointed out that since the establishment of the Division in the 1950s as a small section under the Superintendent of Agriculture, its role and responsibilities had steadily increased. This was particularly so in three areas:

- protection of the forest resource through maintenance, patrolling of boundaries, prevention of illegal harvesting, unauthorized occupation;
- control of authorized commercial utilization activities in the forest; and
- renewal of the forest resource, and protection of sensitive areas through an active silvicultural plantation programme, primarily for protection, but also for reducing the country's dependence on imported wood.

It, therefore, put forward a new organizational structure, which it suggested should be effected in the ten-year period, 1994 to 2005. 4.

It will be noted that in the new structure the supervisory layer of management has been strengthened with the suggested appointment of four Forest Supervisors, with the objective of ensuring the efficient functioning of four main technical areas of the Forestry Division's activity: technical support, forest development, forest protection and forest conservation.

These four Forest Supervisors would oversee a number of forestry officers who have been assigned various responsibilities. Thus, the Supervisor, Technical Support is responsible for education, inventory, and research; the Supervisor, Development, administers and managers Forestry Officers who bear responsibility for silviculture, extension and utilization; the Supervisor, Protection, looks after a batch of Forest Guards; and the Supervisor, Conservation, has been put in charge of watersheds, wildlife, and recreation.

It will also be noted that in the new proposed structure, the Director of Forestry reports directly to the Ministry and not through the Chief Agricultural Officer.

The stated goal of the Forestry Division is *"to be a professional organization conserving, protecting and developing the national forest resources for the optimum benefit of the entire community of St Vincent and the Grenadines."*

The planning, organization, coordination, production, and control of all aspects of forestry are the responsibility of the Minister responsible for forestry, and the Forestry Division. However, the law also authorizes St Vincent Electricity Services to improve catchments if, in its opinion, prevailing situations so warrant.

Although the Forestry Division, in conjunction with the Ministry of Agriculture, Industry and Labour, bears the responsibility for formulating policy, this is undertaken in full collaboration with the Central Planning Division, which, in addition to containing a physical planning section, has overall responsibility for the coordination of the socio-economic development of St Vincent and the Grenadines.

It will have been observed that the National Forest Resource Conservation Act mandated the Forestry Division to promote the involvement of farmers and the private sector in establishing and utilizing the nation's forest resources. Partly as a result of this mandate, and partly as a result of the very nature of the services which the Forestry Division supplies to the public at large, there exists a number of inter-governmental and community linkages in the administration of forestry in St Vincent and the Grenadines. These links will have been observed, have been presented in Table 2.

This Table, to a great extent, speaks for itself. It should, however, be emphasized that formal links have been established between the extension services of the Department of Agriculture and the Forestry Division, particularly in the area of agro-forestry, but also in the field of watershed management; that, as has been pointed out, forestry is represented, through the Chief Agricultural Officer, on the Board of St Vincent Electricity Services, that there is frequent but not formalized, cooperation among them at all the lower levels of administration and management; and that, increasingly, there is more communication between the Forestry Division and those responsible, in both the private and public sectors, for eco-tourism.

In general, the staff of the Forestry Division are held in high regard. Indeed, no one has even hinted that any sort of moral turpitude is to be found in the Division. This should, perhaps, not be surprising because the avenues of commercial forestry, and therefore for rent-seeking, are somewhat restricted. Nevertheless, the Forestry Division has been zealous in its pursuit of encroachers of the forest estate,

whether they be illegal timber extractors, small farmers, larger banana growers, or marijuana cultivators.

The public acknowledges, however, that the Forestry Service cannot be as effective as it might because of its shortage of both financial and human resources.

The most important accolade, perhaps, comes from those organizations, the very profitability of which is dependent upon the activities of the Forestry Service. Thus, for example, the General Manager of St Vincent Electricity Services unreservedly commended the efficiency and reliability of the Forestry Division.

It cannot be too strongly stressed, however, that the Forestry Service remains understaffed, both quantitatively and qualitatively. Members of the staff, though highly motivated, are almost all relatively young, and correspondingly, inexperienced. There is an obvious need to speed up the rate of recruitment and to increase training programmes at all levels.

## 7. CONCLUSIONS AND RECOMMENDATIONS

It will have been noted that this Report does not provide any information on any research or activity which is being undertaken in St Vincent and the Grenadines in order to gain knowledge in policy formation: in process study, in policy content analysis, in methods analysis and in policy evaluation, for example. This information is not provided simply because it does not exist. There does not appear to be any institution or person in the country, even in the Central Planning Division, carrying out such work.

It will also have been observed that all the major policies which impinge on forestry, which have been analysed in this Report, have been largely initiated and formulated by foreign institutions and consultants, and not by citizens of the country.

These facts are stressed in order to emphasize the necessity for training in the methodologies of policy formulation, and to urge that such training, either in groups or at the level of the individual, be provided to St Vincent and, indeed, to other Caribbean countries.

There is also the need for the quantification of the benefits which the forests provide to the economy of St Vincent. This would not be a mere academic exercise. There is strong evidence that the resources available for forestry in St Vincent might be increased if the contributions which forestry makes, and is capable of making to the country's development, can be quantitatively assessed and priced. It is arguable that if resources to forestry were increased, the Forestry Division would become more effective, and there would, therefore, be a net gain to the economy of the country as a whole.

There is also a dearth of the information on which policy analysis should be based. Here again, it is recommended that technical assistance be provided in identifying and classifying the type of information required, the means of obtaining it, and the methods of storing and retrieving it.

Because a forest policy is of little or no practical importance unless it is effectively implemented, there is also the need to strengthen the staff of the Forestry Division, to upgrade it to a Department as is required by law, and to provide it with the necessary resources to perform all the tasks demanded of it.

It is also more than desirable, in St Vincent and the Grenadines, that formal mechanisms be established for formulating and implementing land-use strategies, resolving the problems which arise from overlapping jurisdictions and, in general, rationalizing the consultative process among the several agencies responsible for various aspects of land management.

These short-comings have been high-lighted only to stress the fact that the Government of St Vincent and the Grenadines, over the last decade or so, has systematically sought to improve the efficiency of its Forestry Service, and, through this organization, to enhance the quality of life of its citizens. It formulated a comprehensive forest policy in 1992, it enacted sound forest legislation in that year also, and in 1994 it drew up a Forest Resource Conservation Plan which provided a blueprint for the sector's development for ten years.

These highly commendable and laudable steps should not be permitted to falter, for want of adequate resources, and for want of a follow-up strategy.

The consultant thanks the many public officials, NGO representatives, and officials of para-statal organizations who readily provided the information requested, and indeed guided him in many instances to other sources.

All were enthusiastic about the importance of forestry in the country's development, and all appreciated the possibility that forestry could be the key factor in St Vincent's future development: through the provision of job opportunities which would become available in clothing the hills and mountains with forests to enhance watershed production, improve water supplies, and attract tourists; through the establishment of agro-forestry plantations for the joint production of food and wood, and the provision of ecological and conservation services; and through the establishment of forest plantations to supply a significant proportion of the wood and wood products which the country now imports.

In short, if properly planned and executed, forestry in St Vincent can save foreign exchange, increase incomes, reduce rates of unemployment, and significantly increase the standard of living and the quality of life of its citizens.

# ANNEX - LIST OF PERSONS CONTACTED

| | |
|---|---|
| Mr Theophilous Swallow: | Permanent Secretary, Ministry of Agriculture, Industry and Labour |
| Mr Philimore Isaacs: | Chief Agriculture Officer, Department of Agriculture |
| Mr Daniel Cummings: | General Manager, St Vincent Electricity Services Ltd |
| Mrs Laura Anthony Browne: | Chief Planning Officer, Central Planning Division |
| Mr Bentley Browne: | Chief Planning Officer, Central Planning Division |
| Mr Nigel Weeks: | Director of Forestry, Forestry Division |
| Mr Brian Johnson: | Senior Forest Supervisor, Forestry Division |
| Mr Fitzgerald Providence: | Forest Supervisor, Conservation, Forestry Division |
| Mr Cornelius Richards: | Forest Supervisor, Development, Forestry Division |
| Ms Patricia Fraser: | Representative, St Vincent Amerindian Society |

# SURINAME PRELIMINARY FOREST SECTOR STUDY

**by Gesellschaft fuer Organisation, Planung un Ausbildung (GOPA-Consultants)**

# 1. SUMMARY

## 1.1 Objectives of the Study

The aims of the study were:

- To provide a coherent strategy for forest sector development cooperation for the EC and for the GoS.
- To give sufficiently detailed background information on the forest sector and to provide strong justification for the chosen strategy.
- To provide a basis for stimulating policy dialogue between the EC and the GoS and improve participation of other stakeholders.
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A broad approach was adopted, which considered not only the activities required for developing the forest sector but also those needed in related sectors, such as land use planning, nature conservation and environmental protection.

## 1.2 The Forest Resources of Suriname

Suriname is a country about twice the size of Austria with a population of only about 400,000. Most of the people are concentrated in the capital, Paramaribo and along the coast, with only about 10 percent live in the interior. Over 90 percent of the land area is covered in forest, almost all of which is primary forest and rates of deforestation are very low being less than 1 percent per year. The forests of Suriname are rich in biodiversity. Over 500 tree species are known from the relatively small areas of forest that have been surveyed and there are more species of birds in the country than in the whole of Europe. In addition, Suriname contains ecosystems of global importance and the low population, concentrated on the coast, has meant that many of the ecosystems, especially those in the interior are relatively intact.

## 1.3 Issues Relating to Logging and Forest Industries

Commercial forest use has almost exclusively been for timber harvesting. No logging operations practice sustained yield for forest management, with the possible exception of Bruynzeel a parastatal. Most operations are concentrated in the most easily accessible areas and in the most valuable trees only. Reported volumes are thought to be about one half to one third of actual volumes harvested as under-reporting and evasion of payment of royalty and other taxes is frequent. It is crucial, if the goal of sustainable forest management is to be achieved that practices in the logging industry be improved, and controlled more effectively.

Harvesting is located within the Forest Belt, an easily accessible area in the northern part of the country. The forest to the south is located in hilly and mountainous areas and access is made difficult due to rapids on the rivers. Between 1993 and 1994 proposals from several Asian companies were submitted to the Government which, if they had been accepted would have meant an increase of about 150 percent in the area under logging concessions. Following widespread international and local concern about the provisions of the contracts and about the past forestry practices of some of the

companies, the Government took a decision not to award the concessions and to introduce a moratorium on new concessions.

About 500,000 ha of forest are controlled by communities. At present, the rights to the timber are sold to loggers and the fees are often paid to the Head Man. Contracts between the loggers and the Head Man are often poorly defined and both communities and loggers complain of the agreements being broken. There is a long-term need to develop participatory forest management to ensure a fair share of the benefits from community forests, and to develop more formal agreements between communities and loggers.

Wood processing industries largely cater for the local market, where even poor quality wood products will sell: exports only comprised 11 percent of the sawn timber produced in 1995. There has been little investment in the wood processing industries in recent years and they are generally producing products of a standard unacceptable to international markets. This is due to a number of factors, including poor management, low levels of operator skills, old and worn out machinery and poor handling of logs and wood products. There is considerable potential for improving recovery rates and also productivity of personnel and machinery in the wood processing industries.

## 1.4 Issues Relating to Government Activities in Forestry and the Environment

A rational and integrated land use policy is required for an effective forest policy. Therefore, any forestry development should also encourage the adoption of a National Land Use Policy and effective land use planning. The legislation and framework for land use planning exists but the programmes and plans needed for their application have never been developed.

There is no formal forest policy and this is a considerable constraint to development. Legislation would provide a basis for sustainable forest management in the 1992 Forest Management Act. However, this requires amendment and a regulatory framework before it can be effective.

Control and monitoring of operations by the LBB, the Government forest service, is almost non-existent. Most of the staff are based in Paramaribo and employed at the lowest grades. Productivity is poor and most employees need additional jobs to supplement the low wages. There are few facilities and no field allowances for visits into the forest and most of the infrastructure for control, such as check points on major roads and rivers, is not operational. In 1996, collection of royalties and other taxes only paid for one thousandth the cost of running the LBB.

Activities in nature conservation are being conducted, albeit at a basic level, due to committed staff and some funding from outside donors. A National Environmental Action Plan is being drafted at present and will form a strong basis for a Government environment programme. However, the responsibilities for Government management and regulation of activities that affect the environment is spread over a number of organizations and further coordination is necessary. Also, there is a need for further legislation to support nature conservation and environmental protection and to define the responsibilities of the various Government organizations. Approved methods and procedures for EIA, pollution control and monitoring are lacking.

## 1.5 Priority Themes for Development

Priority themes for development cooperation were identified through comparison of national priorities with the EU Guidelines for Forest Sector Development Cooperation, the 1995 Council Regulation Number 3062/95 on operations to promote tropical forests and the draft EU-Suriname National Indicative Programme.

Six themes were identified for development cooperation for the forest and environmental sectors and are described below in a proposed order of priority:

- Develop a strong Forestry Regulatory Institution.

- Improve the Information on the composition and potential use of the forests of Suriname.
- Encourage sustainable forest management in the private sector.
- Improve the efficiency and marketing of the wood processing industry.
- Develop the capacity of forest communities to manage their forest.
- Create an effective and coordinated capacity for land use and management of the environment and conservation.

## 1.6 A Proposed GoS/EU Forestry Development Strategy

Development strategies for the six main themes are summarized below and are presented in section 5.

**Develop a Strong Forestry Regulatory Institution**

This was considered the highest priority activity as without an effective forest service there will not be sufficient monitoring, control and promotion of the forest industry to ensure sustainable forest management. Although there is consensus that a change is needed there are differences in opinion as to the type of organization that should be created. This study proposes that a parastatal "Forest Institute" be formed, believing it to be the quickest and most effective way to develop an efficient forest service. It is also proposed that the organization be self-financing, so that it is not a drain on the country's finances. Indeed, in the long term, it is hoped that the forest industry will be a net contributor to the Government's funds. Further discussion is needed between the GoS, the EU and other donors to determine the type of organization and its range of responsibilities. The Institute could develop on the basis of the presently developed Production Control Unit.

**Improve the Information on the composition and potential use of the forests of Suriname**

To manage a resource efficiently a certain level of information is required. This theme for development has the objective of increasing the information available on the forests and ecosystems of Suriname enabling a more informed approach to determining its use. If the area of forest being harvested is to expand, it will be to the south of the present forest belt. To effectively manage the resource, both the Government and the private sector must have basic information on the extent and composition of the forest. At present, little is known of the composition of the forests in the south of Suriname and a forest inventory is proposed. This information would allow better valuation of the forest resources and planning of forest use. A possible implementing agency would be CELOS who has significant research experience.

For rational planning for nature conservation and to enable identification and protection of areas of particular biological importance, a knowledge of the extent and composition of ecosystems is required. An ecosystems inventory of the Guyana Shield is proposed which would complement the information on ecosystems of the coastal plain and savannah belt, surveyed in 1978. This could build on the experience of a recent EU funded ecosystems inventory project with the LBB Nature Conservation Division. A possible support system for both these inventory projects could be the use of GIS.

**Encourage sustainable forest management in the private sector**

Without an adoption of methods of sustainable forest management, logging will continue to degrade the forest, reducing its value to future generations. Strengthening the Government's capacity for monitoring and control of the forest sector must be undertaken in conjunction with improving the industry's ability to meet new and more rigorous standards of forest management. The EU is constrained, however, in its support to logging, except when it is small-scale and community based.

However, two initiatives are proposed which indirectly support commercial logging. The first involves promotion of certification, through a project with Bruynzeel. High value markets have more rigorous

environmental requirements and there is a need to investigate the role that "green labelling" or certification could have in improving sales of Suriname logs or wood products. Bruynzeel is the only logging operation in Suriname working at a level of planning and management where certification is possible. The second involves creating a professional body for forestry with the aim of improving standards at the technical and professional level. This could be implemented through an existing forestry association.

**Improve the efficiency and marketing of the wood processing industry**

This was given a lower priority than activities associated with improving logging as it has a smaller impact on the environment and on forest communities. It does, however, have significant potential for contributing to the Suriname economy. In addition, if a self-financing forest service is approved, its scope will largely depend on the vitality of the forest industries. Proposed projects concentrate on improving technical and managerial skills in the industry through training and providing advisory assistance on technical matters and marketing. The first potential project involves improving the facilities at NATIN for teaching skills necessary for wood processing while the second provides long term advisory assistance to the industry. A further possible project is focused on improving the productivity of mobile and walk-about mills, through provision of technical and managerial advice and also through improvement in the supply of spare parts.

**Develop the capacity of forest communities to manage their forest**

Forest communities claim 500,000 ha of forest land for their own use. Logging in areas of forest under the control of forest peoples is not sustainable and proceeds are often distributed in an inequitable manner. There is a need to develop community forestry management. A pilot project is proposed to develop a model for community forest management which can be replicated in other communities.

Periods of logging are often separated by long periods when no logging occurs, to allow the forest to recover and small trees to reach merchantable size. This creates irregular income for forest communities. Non-timber forest products may offer a supplementary or alternative income to logging, however, there is little information on their commercial potential in Suriname. A basic study is proposed to identify and assess the commercial worth of non-timber forest products.

**Create an effective and coordinated capacity for land use and management of the environment and conservation**

Without effective and rational land use planning, conflicts will arise between different land uses. Although a Planning Act exists as the programmes and plans to make it effective have never been produced. Creating a Land Use Planning Service is described as a potential project and suitable implementing organizations are considered to be PLOS or the Office of the President.

For a country with such a wealth of biodiversity and ecosystems of world conservation importance, nature conservation is a priority for both GoS and donors. At present, the Nature Conservation Division of LBB is relatively well funded compared to the rest of LBB. However, funding is not sufficient to enable the Division to fully carry out many of its responsibilities. Funding is presently from WWF Netherlands and additional funding may be forthcoming from the Netherlands Government and through the GEF. If this funding does not materialize, there is considerable scope for EU to strengthen the capacity of the Division, through improving management of protected areas and policy development, such as updating the National Conservation Strategy.

Improvements in the economy of Suriname are likely to increase the rate of development and place more pressure on the country's natural resources. This will place a further strain on those Government organizations involved in nature conservation and environmental protection. Six potential projects aimed at improving nature conservation and environmental protection are described in this study. Most involve a strengthening of Government capacity through legislation, training and development of existing organizations. However, one project is involved in the establishment of a new Environmental

Management Agency. This would have an over-riding responsibility for environmental matters and ensure coordination between the various Government organizations involved in environmental activities. There are several projects imminent in the field of environmental management that are funded by other donors, notably the IDB and it may be that there are, therefore, higher priority areas for EU funding.

Most of the population of Suriname is found in urban and agricultural areas along the coast with few people living in the interior. There is little comprehension of the importance of the environment and the impact of the activities from various industries. A potential project is described which aims at increasing the awareness of the public through environmental radio and television programmes.

# 2. BACKGROUND

## 2.1 General Information

### *2.1.1 Geography and Climate*

The Republic of Suriname is located in South America between longitude 54o and 58o West and latitude 2o and 6o North and occupies a land area of almost 164,000 km², about twice the area of Austria. Neighbouring countries are French Guyana, Brazil and Guyana, respectively to the East, the South and the West. To the North of the country is the Atlantic Ocean. There are unsettled border conflicts with Guyana in the south-west, and with French Guyana in the south-east of the country.

The climate is humid-tropical. Mean monthly rainfall is greater than 60 mm even during the driest months. The long term mean annual rainfall varies from 1,450 mm (Coronie) to about 3,000 mm (Tafelberg). Temperature varies little, the difference between the coldest month, January and the warmest months, September and October is 2°C. Hurricanes are rare.

### *2.1.2 Population*

The total population is estimated to be 423,000 of which about 70 percent is concentrated in and around the capital city of Paramaribo, with most of the remainder living on three percent of the land area along the coast. The average population density for the entire country is 2.5 persons/km$^2$ but for the interior is only 0.2 to 0.3 persons/ km$^2$ . Suriname has an extraordinary and unique ethnic mix with Hindustani (37 percent), Creoles (31 percent), Javanese (15 percent), Maroons (10 percent), Amerindians (3 percent) and others (4 percent). Of these, there are two ethnic groups that live traditional lifestyles in forest areas, the Amerindians and the Maroons. The Maroons are descendants of West African slaves who escaped into the forest.

During the last 25 years, over 200,000 Suriname nationals have emigrated, including many professionals. In the 1970's rates of net emigration were highest with 36,000 persons leaving during the decade. This trend slowed in the early 1980s but increased significantly in the latter part of the 1980's and the first part of the 1990's.

### *2.1.3 The Political Environment*

Under the present constitution of 1987, the Republic of Suriname is a democratic state headed by a National Assembly of 51 members, who are elected to a five year term of office. The President and Vice-President are elected by the National Assembly and also hold office for a term of five years. The Vice-President chairs the Council of Ministers, the highest executive and administrative body of government. Legislative powers are exercised jointly by the National Assembly and the Government.

Political parties in Suriname are based on ethnic groups rather than ideology or class and as no ethnic group has an absolute majority, governments are usually formed through coalitions. In the last General Elections, held in May 1996 a four party coalition, The New Front, was replaced by a six party coalition headed by the New Democratic Party under the leadership of the two time coup leader Desi Bouterse. The new Government is led by Jules Wijdenbosch as elected President.

### 2.1.4 The Economy

The Suriname economy is showing clear signs of recovery after a decade of decline. In 1995, exports grew by more than 20 percent and GDP by 5.2 percent. This has been largely due to economic policies such as the adoption of a floating exchange rate and the adoption of a structural adjustment programme. Budget deficits have been reduced, inflation has decreased markedly from 586 percent in 1994 to only 0.3 percent over the first eight months of 1996 and gold and monetary reserves have increased to US$130 million from nil in the early 1990's. External debts have been settled, rescheduled or are in general being repaid in a timely manner. The most important sectors in the Suriname economy are mining and crude oil production, energy, agriculture, forestry, fishing and tourism.

According to a 1996 Draft World Bank study, Suriname's wealth per capita has been estimated at US$389,000 and ranked as 17th in a list of 129 countries, based on human, natural and man-made resources. This theoretical wealth only generates a per capita income of US$880. Suriname's vast natural resources, which are still largely unexploited or under-exploited have attracted interest from international investors, especially in the timber industry. This has increased national and international concern about the exploitation of Suriname's forests.

## 2.2 Forest Sector

### 2.2.1 The Extent, Composition & Productivity of the Forest

Of a total land area of almost 16.4 million ha, more than 90 percent or 14.9 million ha is covered with natural forest and at least 80 percent is covered in primary forest. In the accessible forest, climatic conditions and geomorphology have resulted in a number of forest types. For timber production, the most important of these forests are the high forest, the Virola swamp forest, the ridge and marsh forest and the high savannah forest, in total an area of 14,272,000 ha. Plantations are of minor importance, covering only 12,000 ha.

CELOS estimates that there are over 500 tree species in the accessible forests of Suriname, and the forest is highly variable in terms of botanical composition, stem size distribution and canopy height. The largest trees can reach a DBH of 150 cm which is a relatively modest size compared with some other areas of tropical moist forest. Very little is known about the composition of the forests in the southern part of the country.

Although an extrapolation of volume figures from FAO inventories to the whole country gives an estimated total volume of more than 3 billion $m^3$, growth rates are low without silvicultural treatment, being about 0.2 $m^3$/ha per year of commercial timber. With such growth it is thought that rotations of more than 60 years will be required for sustained yield if there is no silvicultural treatment. However, CELOS estimates that a maximum sustainable yield of 20-30 $m^3$/ha per year on a 20 to 30 year rotation is possible with silvicultural treatment. Loggers in Suriname generally only obtain yields of between 10 and 15 $m^3$/ha.

Accessibility, either by road or water is the factor which most influences forest exploitation. Accessible forests, generally those to the north of rapids on main rivers were estimated to cover an area of 3,789,4000 ha. Forest to the south of the rapids, and presently considered inaccessible, covers an area of 11,065,600 ha. The far south of Suriname is mountainous and, therefore, the forest of this area is relatively difficult to harvest. Of the accessible forest, an area of about 2,239,400 ha is

presently exploitable and accessible forest of which 50 percent is not suitable for logging either due to terrain or because of proximity to areas used by local communities.

### 2.2.2 Exploitation of the Forest

Historically, deforestation has been negligible, with recent estimates of rates of deforestation being as low as 0.1 percent per year. Conversion of forest has been concentrated along new roads and along riverine areas inhabited by traditional communities who practise shifting cultivation. In some parts of the country, forest cover has expanded covering areas that were previously cleared for resettlement schemes.

In early 1993, the Suriname Government, suffering from considerable economic problems, began encouraging investors from Asia. The forestry sector attracted interest from several logging companies from Indonesia or Malaysia and in August 1993 a 150,000 ha concession was granted to an Indonesian investment group, locally incorporated under the acronym MUSA. This was located to the south of the area presently being exploited and was the largest area that could be awarded as a concession under the 1992 Forest Management Act. In breach, at least in the spirit of the Act, the same group of investors proposed establishing 67 further locally incorporated companies each with concessions of 150,000 ha. In turn the investors gave a commitment to invest over US$1 billion.

Other Asian companies, from Indonesia, China and Malaysia followed, submitting proposals for large logging concessions. The largest three, including MUSA totalled an area of over 3 million ha and represented 143 percent of the area currently under logging concessions. Detailed contracts were written, new rates for fees and royalties proposed and legislation was drafted by the Government to establish a parastatal to control and monitor the companies. International and domestic criticism delayed a decision by the Government on the granting of the concessions. When the new Government was elected in May 1996, a moratorium on logging concessions of more than 150,000 ha was announced. This, in turn, made redundant proposals to create a parastatal with responsibility for controlling large concessions.

### 2.2.3 Forest Policy, Legislation and Administration

There is no clear description of forest policy in Suriname although there are statements of policy in Government Acts, the Constitution and the Government's five year Plan. FAO has prepared a proposed Forest Policy but it has not yet been adopted and plans, dating from 1988, to draft a TFAP for Suriname has never been realised.

There has been a long history of forest legislation in Suriname. In 1947, the Timber Ordinance was enacted which created the Suriname forest service, the LBB. The Forest Management Act of 1992 provided a comprehensive legal framework for sustainable forest management on public land, although it required some additional legislation before being effective and now needs some amendments. Other legislation relating to the timber trade include The Timber Export Tax Law of 1950 and The Timber Import Resolution of 1954 which prohibits the import of logs and certain wood products.

The state forest service, LBB, suffered a serious decline, during the 1980's. Unrest in the interior resulted in the destruction of much of the forest infrastructure and parts of the research stations. The country's economic problems in the 1990's resulted in a further decline of the LBB; a drastic reduction in the real level of salaries forced many staff into taking additional jobs or leaving LBB for better paid employment in the private sector. Presently the LBB counts only on three staff with professional education in the sector. The LBB suffers from a weak internal organizational structure, with most employees concentrated in and around the capital Paramaribo and almost 90 percent being on the lowest pay scales. Of the annual budget for 1996 of US$586,000, 80 percent was allocated to salaries and 15 percent for office supplies, the remainder being used for maintenance.

The LBB has thirteen service divisions and six operational divisions; Nature Conservation, Timber Inspection, Forest Control, Research, Forest Regeneration and Plantations and Infrastructure and

Roads and Buildings. Of these, only Nature Conservation is working under favourable conditions, obtaining support from the parastatal STINASU which receives external funds from international donors. As a consequence, LBB is unable to monitor logging within concessions, the transportation of logs, the wood processing industry and is unable to efficiently collect royalties.

The shortcomings of the LBB have been recognized by the GoS and there have been several internal or donor funded studies since 1995 to investigate options for development of Government forest institutions. Three were drafted as proposals for monitoring and controlling large scale logging operations (Tham, 1995; Tham, 1996 and SGS, 1995), the SGS study with EU funding. This was in the expectation of concessions of over 3,000,000 ha being awarded to several south east Asian logging companies. Five studies conducted during 1996 by FAO, in collaboration with LBB, provide a further source of information and give practical recommendations for developing the capacity of forestry institutions in Suriname. The studies include development of policy, (Larsen, 1996) administration (Flaming, 1996) and legislation (Cullinan, 1996) and make recommendations for the development of forestry institutions. From these studies emerged two project proposals; Draft Project Proposal for Forest Production Control and Draft Project Proposal for Advisory Assistance.

### 2.2.4 Forestry Training and Research

There is a well established programme of training for forestry at all levels in Suriname. Training for Forest Guards and workers is based at the Jan Starke Forest Training Centre, the status of which may be changed to a foundation. Funding has been received for rehabilitation of their complex near Zanderij, about 45 km from Paramaribo. The lower technical schools offer training for industrial workers, builders and joiners. A four year course in forestry and also a course in engineering studies, that includes joinery and house construction, is offered at the Nature Technical Institute (NATIN), a teaching institution affiliated to the Ministry of Education. In addition, the University of Suriname offers a BSc in forestry. Unfortunately, demand for these courses, apart from that provided by the University, is practically nil. The poor demand is thought to be due to the unattractiveness of a career in forestry due to poor salaries, unattractive conditions of employment in government service and also the uncomfortable environment of the interior.

There is almost no forestry research being conducted in Suriname. At a limited level, the CELOS Centre, a foundation with links to the University of Suriname and the University of Wageningen in the Netherlands is still active. The CELOS system, developed by the Centre, features a combined low-impact harvesting system and post-harvesting silvicultural system, managed on a 20-25 year rotation. It is widely admired as a potential model for sustainable forest management. However, the research on which the CELOS system was based was never completed due to the civil unrest in Suriname and there are limited examples of its adoption on an operational scale, notably in Brazil and Costa-Rica. The Wood Technology Laboratory at CELOS recently completed a study of the utilization of 40 secondary species with funding from Belgium. A GIS supported study "Ecological and Economic Assessment, Inventory and Monitoring of the Amazon Rainforest Ecosystems of Suriname" was conducted by CELOS with EU funding; this project was evaluated in the framework of the mission of the Forest Inventory and GIS specialist.

### 2.2.5 Forest Revenue Systems

Forest fees have been levied in Suriname since 1947 and are comprised of two parts; a royalty based on the timber volume and type of tree and an acreage fee based on the concession area. These fees were expressed in $Sf$. A period of extreme devaluation of the currency from about $Sf$ 1.7 per US$ to $Sf$ 400 per US$ left the fees worth practically nothing. In addition to the forest fees, there are export and inspection fees and duty on logs. Revenue collected in 1996 amounted to about US$500 compared with expenditure by LBB of US$586,000 and total fees per $m^3$ of timber never exceeded 3.5 US cents. In December 1996 forestry fees were re-valued but it is not yet clear whether they have been levied.

### 2.2.6 Forest Infrastructure

The forest belt, the present accessible forest is reached via a main east-west road from which smaller roads branch and lead into the forest. In total, about 1,300 km of forest roads, two major and four minor bridges, were constructed by the LBB. There has been no regular maintenance since the 1980's and several bridges were destroyed during the war in the interior. However, loggers have been able to continue harvesting by using road transport where possible and river transport elsewhere.

Unfortunately the control of logging has suffered through the deterioration of forest infrastructure. In the past, the removal of forest products was controlled through 17 control stations, located along main roads and rivers. Most of the stations no longer function. Research and reforestation activities have also suffered during the war in the interior, with many of the field stations being destroyed and most equipment being lost. It is estimated that repair and rehabilitation of control stations, roads and bridges will amount to US$24 million. A project to undertake this rehabilitation has been proposed by the Netherlands.

## 2.3 Forest Industries

### 2.3.1 Areas Designated for Logging

There are currently 246 concessions registered with LBB under 70 holders. The total area under concessions amounts to 1,568,196 ha, with more than 75 percent of the concessions being of less than 5,000 ha. There are three types of concession:

- Concessions with an area of up to 5,000 ha and a lease of 5 years.
- Concessions with an area of up to 50,000 ha and a lease of 10 years.
- Concessions with an area of up to 150,000 ha and a lease of 20 years.

There can be one extension to the lease and thus the maximum period that a concessionaire can control an area is 40 years. This period is too short to promote a long-term view or sustainable forest management as even with appropriate silvicultural treatment, this period covers only two rotations or less.

Permission to harvest trees can also be obtained through Incidental Cutting Licences (ICL) and under Communal Felling Licences (HKV). A total of 122 ICL's cover an area of 502,580 ha and are valid for 12 to 24 months. HKV's allow exploitation on land held by traditional forest communities. These areas total 500,000 ha; there is no limit on the volume harvested nor is there any charge for timber unless it is sold. If the timber is sold, royalties at double the normal rate are payable but not the acreage fees that are payable by holders of concessions.

Existing licences and concessions lost their validity with the new Forest Management Act of 1992 and the LBB is at present making efforts to renew concessions and licences and process new applications. Under the Act, to be granted a concession, the applicant must fulfil the conditions laid down in the Exploration Licence, requiring pre-harvest inventories and harvest planning of a specified standard. These rigorous legal conditions contrast with the reality, where irregularities are frequent and harvesting is concentrated along points of easy access, such as rivers or roads. Reportedly, inventory work is often neglected, and tree spotters are despatched instead to find sufficient trees of merchantable dimensions and species. These practices are common to all areas regardless of whether they fall under concessions, HKV's or ICL's. This type of forest exploitation is not conducive to sustainable forestry, as the same areas are constantly harvested with the result that the forest is not given time to recover.

### 2.3.2 Logging & Forest Industries

Loggers in Suriname founded an Association in February 1997 with 31 members. The loggers specialize in harvesting and transportation of logs and do not hold their own concessions. Loggers and even sawmillers who have their own concessions, mostly harvest from HKV and ICL areas, avoiding the requirement of an inventory and a harvesting plan. It is estimated that 80 percent of log production is obtained from these two types of areas and there is no effective control on the volumes extracted. The loggers pay between US$5 to US$10/$m^3$ to the licence holder and should pay royalty of S*f*. 600/$m^3$ for Class A timbers and S*f* 300/$m^3$ for Class B timbers to the LBB. Concessionaires and loggers have to develop their own forest infrastructure, but most avoid the large investment in road construction machinery by only felling trees close to watercourses and transporting logs along rivers and creeks in floats or pontoons. These practices result in destructive harvesting and in HKV areas in the "mining" of the resources of forest peoples.

Log production declined considerably during the war in the interior, dropping from about 220,000 $m^3$ in 1985 to less than 100,000 $m^3$ in 1993. There has been a slight recovery in the last two years but levels of production still remain at about half those of 1985. It is estimated, however, that only about one half to one third of production is reported.

The market for logs is mainly in and around Paramaribo and supply of logs of main commercial species is sufficient, accounting for 30,000 to 40,000 $m^3$ per year. The main commercial species comprise Basralokus (*Dicorynia guianensis*), Bruinhart (*Vouacapoua americana*), Kopi (*Goupia glabra*) and Granfollo (*Qualea spp.*) and prices range from US$50 to US$90/$m^3$ delivered to the mill. The market elsewhere suffers from a lack of a road link for heavy vehicles to Nickerie.

Log exports have been low recently, with the exception of those to Guyana where about 50,000 $m^3$ of Suriname logs are sold each year, some illegally, to supply large wood processing industries. China has also become an importer of logs from Suriname with about 6,000 $m^3$ being bought in the last three years. Only about 1,000 $m^3$ were exported to other markets mainly the Netherlands and other EU countries. Prices from China were low, being only about US$40/$m^3$ and contrast with log prices paid by a German importer of US$100/$m^3$. With the interest in Europe and the USA in "green" timber these price differentials are a strong argument for green labelling or certification.

There is only one ply mill in Suriname and although it has a capacity of 24,000 $m^3$ per year, production between 1991 and 1995 amounted to only about 6,000 $m^3$ per year. Established saw millers are organized into three different associations with most being members of the Timber Producers Association (ASHU). All established saw millers are also members of the Chamber of Commerce. By March 1997 a total of 38 sawmills were operating, concentrated in the Paramaribo area. Most of the sawmills are equipped with one to three gang saws, between 15 and 50 years old and often planers and edgers, many of which were no longer working or too worn to produce acceptable quality. Nevertheless some of the mills produce acceptable quality sawn timber with older equipment. The log input capacity for Suriname sawmills is estimated about 500,000 $m^3$ per year while recorded log production is about 100,000$m^3$. Sawmills are therefore working at serious under-capacity. Main problems were identified as lack of capital, high prices for logs, unreliable and old equipment and lack of skilled staff. Lately investment has increased and some mills have modernized their saws and finishing equipment. Recovery rates range from 30-40 percent and exceptionally 50 percent but these figures should be viewed as estimates as record keeping is not widely practised. Saw doctors in Suriname have adequate equipment for servicing and sharpening saws.

There is a lack of trained staff, both in the logging and saw milling sectors of the industry. Most workers receive on-the-job training of a poor standard, resulting in excess wear and tear on the plant and machinery, low quality products and a higher incidence of accidents. Wages and motivation are low. A 1992 FAO report (in Flaming, 1996) estimated productivity to be 26$m^3$/person/year compared with 266$m^3$/person/year in Argentina. There is considerable opportunity for raising labour productivity within the industry.

With recent improvements in infrastructure, entrepreneurs have started to produce sawn timber using chain saw or walkabout mills and also mobile sawmills. Quality from mobile mills is particularly good

but the log must be moved to the mill and heavy transport is required, whereas with the walkabout mill, the mill can be moved to wherever the tree was felled. There is little data on the number of mills and their production but they are competitive both in quality and price with the established permanent mills. Price of their lumber is between S*f* 60,000 and S*f* 70,000/ $m^3$ which is about one third less than that produced by the established sawmills. Mobile mills face similar problems to the large mills, notably a lack of technical skills and spare parts.

### 2.3.3 Production and Marketing of Timber Products

Most sawmills produce the full range of products that can be sold on the domestic market. However, some exceptions exist, such as mills that produce beams and piles for bridges and harbours and also railway sleepers. Some sawmills specialize in certain timbers, for example Basralokus or Groenhart (*Tabebuia serratifolia*) for export or Granfollo for the domestic market. Most, however, saw whatever timber is delivered to their yard. Some saw millers complained about a lack of logs of certain species, but in fact the problem would appear to be due to lack of communication or disagreements over price and, in general, log supply, even of specialist timbers, was considered to be adequate.

There is much room for improvement in the management of sawmills in Suriname. In some instances, lumber is not even sorted by dimension or species, leaving the customer to sort through large piles of timber. Also lumber is often of poor quality in respect of defects, wood moisture content, fungal degrade, insect degrade, warping, twisting and splitting. There is little incentive for improvement as the local market will accept this poor material. Timber drying, even air drying is generally not practised and only one company produces treated wood products, impregnated pine poles harvested from plantations. Many sawmills have made an attempt to add value through the installation of additional machinery to produce wall panelling, flooring and mouldings. Unfortunately use of poorly dried and selected material and processing with old and obsolete machinery results in poor quality products.

Production of sawn timber between 1990 and 1994 was fairly constant at about 40,000 $m^3$ per year, while production in 1995 dropped to 31,800 $m^3$. Over 90 percent of the lumber produced is sold on the domestic market at between US$150/$m^3$ and US$350/$m^3$ in Paramaribo and between US$90/$m^3$ and US$250/$m^3$ in Nickerie. These prices are high considering the quality of the product. The volume of sawn timber exported trebled between 1991 and 1995, the main customers being the Netherlands, the Netherlands Antilles, Germany, the USA, other EU countries and in the last year countries of the Caribbean Common Market. Export prices for sawn timber are between US$300/$m^3$ and US$400/$m^3$ Fob. There is a regular shipping service between Suriname and Northern Europe.

There is considerable potential to develop existing and new export markets. There are good contacts between Suriname exporters and traders in the Netherlands, however, contacts with North America and Asia are weaker. Better information on log prices and on overseas timber merchants is needed in Suriname. Interest in European and US markets in "green " timber and the high prices paid by these markets should support a move towards green labelling and certification.

Sawmills in Suriname lack the capacity to meet large export orders, notably those from EU countries. Orders of between 30 $m^3$ and 50 $m^3$ per month of lumber can be met but orders of 100 $m^3$ per month are too much for the managerial and technical capacities of many of the mills. However, traders and exporters do collect lumber from small producers to form large enough consignments.

### 2.3.4 Uses of the Forest other than Timber Harvesting

Uses of the forest other than timber harvesting have potential in Suriname. They can provide an alternative or supplementary income to forest people and can also allow a constant income from an area of forest. In contrast, logging tends to provide a considerable return over a short time, when harvesting is taking place, but this is followed by a long period of time until the forest can be harvested again.

There is provision in the 1992 Forest Management Act for commercial exploitation of non-timber forest products though they are thought to have considerable commercial potential. Forest people already

collect a large range of non-wood forest products for their own use or for sale. Commercial gathering of medicinal plants is becoming more prevalent. The US National Institute of Health, Suriname and international based NGOs, the indigenous Saramakaner tribe and a pharmaceutical company are collecting plants from the rainforest in southern Suriname and screening them as possible treatments for HIV and cancer. Increased activity in the field of bio-prospecting is providing few benefits, if any, for the nation or local communities. Legislation is required to ensure a fair return to Suriname for the use of its genetic resources. These benefits would encourage the conservation of areas of high biodiversity.

Tourism, in general, has expanded greatly in recent years, in 1992 there were three operators and now there are 22 registered tour operators. Eco-tourism has also grown rapidly and is viewed as a potential low impact use of the forest. Tours cost an average of US$450 for a five day tour in the interior. This is relatively expensive for VFR tourists who comprise 80 percent of the 8,000 visitors to the interior each year. A National Tourism Policy is being developed with EU assistance.

The trade in wild animals and plants is an important non-timber use of the forest. In 1995, exports, numbering 72,869 plants and animals, were valued at US$1,261,068 and is likely to have increased in recent years. Collection is controlled through licences issued by the nature Conservation Division of LBB and export is regulated by restrictions imposed by the CITES convention.

## 2.4 Environmental Protection & Nature Conservation

### *2.4.1 The Wealth of Suriname's Natural Resources & the Extent of Protected Areas*

Suriname contains a wealth of biodiversity. The record includes 674 species of birds, more than the number of species in the whole of Europe. In addition, there are 150 species of mammals, 156 of reptiles, 103 amphibian species and approximately 4,500 plant species. Suriname is one of the few remaining countries in the world with relatively unaltered ecosystems of global importance. These ecosystems are found particularly on the northern coast and the tropical rainforests of the interior. The forests contain relatives of commercially important plants such as pineapple, oil palm, sweet potato and passion fruit which could provide useful genetic material for breeding.

Being sparsely populated, pressure for land is low in Suriname. However, with a strengthening economy and interest from international investors pressure to use the country's natural resources is increasing. About 800,000 ha or 5 percent of the country's land area has been set aside as protected areas. These range in area from 100 ha to 220,000 ha and in type from forest ecosystems, to sea turtle nesting beaches, to estuaries important for migrating North American birds. A further five reserves are under consideration.

### *2.4.2 Legislation on Environmental Protection & Conservation*

Suriname is a signatory to most international conventions on conservation, including; The Convention on Biodiversity, The Amazon Cooperation Treaty, The Convention on International Trade in Endangered Species (CITES), The Ramsar Convention and The Convention on Nature Protection and Wildlife preservation in the Western Hemisphere. In addition Suriname is also a signatory to several conventions that focus on environmental protection

There is a good foundation for conservation and environmental protection in the Suriname legislation. The most relevant acts are; the Fish Protection Law (1961), the Game Law and the Nature Conservation Law (1954), the Forest Management Act (1992) and the Planning Law (1973).

## 2.4.3 Organizations involved in Environmental Protection & Conservation

### Governmental Organizations and Institutions

Government involvement in nature conservation and environmental protection is mainly by the MNR and Ministry of Planning. Under the MNR is the Nature Division of the Forest Service which is responsible for the nature conservation and, in collaboration with the Foundation for Nature, (STINASU) manages protected areas. Within the Ministry of Planning and Development Cooperation is the Environment Department of the Planning Office which is responsible for the development of national environmental policy. It is currently coordinating the draft of a National Biodiversity Strategy. Other organizations involved in the environmental protection or conservation include STINASU and the University of Suriname. The University of Suriname provides courses and conducts research relating to nature conservation and environmental sciences. The Environmental Research Centre coordinates the University's activities related to the environment, including research and is currently upgrading its capacity to monitor environmental parameters. To a lesser extent three other ministries have responsibilities relating to environmental protection: the Ministry of Agriculture, the Ministry of Public Works and the Ministry of Health.

Several working groups have been established to coordinate the activities of the different organizations of which two are of particular importance. The first is the Working Group on Environmental and Sustainable Development which has developed a proposal describing an Environmental Management Strategy. However, this proposal has been overshadowed by the production of the OAS funded National Environmental Action Plan (NEAP), a project coordinated through the Institute of Development Planning and Management at the University of Suriname. The second is the National Working Group on Biodiversity, which manages a project, under the Amazon Cooperation Treaty that aims to protect biodiversity. Funds are provided by UNDP through the GEF. Two other working groups are involved with more specific aspects of environmental protection, The Pesticides Working Group which advises the Ministry of Agriculture and the Working Group on Ecological & Economic Zoning, which is preparing a proposal for such zoning in Suriname.

### Non-Governmental Organizations (NGOs)

There are three main Suriname based NGOs working in the fields of environmental protection and nature conservation. The Foundation for a Clean Suriname (SvSS) is mainly involved in strengthening environmental awareness in the public and the Government and improving exchange of information on environmental issues. Conservation International Suriname (CI Suriname) programmes are directed at conserving ecosystems and biodiversity but place emphasis also on human development. Activities include ethnobotanical surveys and protected area management. The Movement for Eco-Tourism in Suriname (METS) is currently the leading tour operator in Suriname. Their success has been partly due to their tours ensuring the involvement and support from forest communities in the interior and to their association with the national airline.

A number of international NGOs are also active; WWF Netherlands is providing an adviser to the Nature Conservation Division of LBB, the Canadian Wildlife Service prepared the management plan for Bigi Pan multi-purpose use area, and several religious groups from the Netherlands have supported activities of SvSS.

## 2.4.4 Activities Related to Nature Conservation and Protection

### Protected Area Management

Of the 15 sites given the status of Protected Areas, five now have management plans which include a detailed description of the area and objectives, strategies and requirements in terms of funds, infrastructure and staff for management. Due to lack of funding, personnel and infrastructure, these plans have never been put into effect. Also, areas selected for protection have been chosen because of their scenic beauty or because of the presence of interesting plants or animals. A scientific approach to selection, based on ecological richness or sensitivity has not been possible because there is little information on ecosystems and where they occur in Suriname. A further potential problem concerns the legislation, the four types of protected areas have no legal status as in the Nature Protection Law, only the term "nature reserve" is recognized. The NEAP identified the main activities that pose a potential threat to the protected areas. These are agriculture, mining, logging and drilling for oil.

### Research, Training and Education

Both the University and the Nature Conservation division of LBB conduct environmental research and coordination between them is poor. Research by the Nature Conservation Division is concentrated on collection of data on ecosystems and protected species within nature reserves. The University is also conducting research on ecosystems and has recently applied for Dutch funding for a three year inventory of the ecosystems of the interior.

The national capacity for education and training in environmental subjects is weak, with no training available on the technical aspects of environmental protection. However, the University has recently started a BSc in Environmental Science and at a more practical level, nature conservation is taught at the Jan Starke Training Centre.

### Current and Future Projects

Most projects in the past have been directed towards nature conservation, however, recently, projects have been taking an inter-disciplinary approach, such as the NEAP and a UNDP funded project, "Enhancing the Capacity of Suriname to Conserve Biodiversity". Other projects, either planned or being implemented include two Dutch funded projects, the Institutional Strengthening of the Nature Conservation Division of the Forest Service and the Inventory of Ecosystems in the Interior. Various other small initiatives have been funded by international aid organizations or NGOs, such as the Canadian support to the preparation of the management plan for Bigi Pan and training of Wildlife Park Managers under the Amazon Cooperation Treaty.

## 2.4.5 Industry and Environmental Protection and Nature Conservation

Most of the country's economic activities are based in the northern coastal zone and the majority of those are within 30 km of Paramaribo. Developments that are likely to have a significant impact on the environment in Suriname include; road construction, mining, creation of industrial estates, aquaculture, development of hydropower schemes, infrastructure for transmission of energy and agriculture. As the economy strengthens, the pressure from such developments on the environment will increase. This is a cause for concern as at present there is no legal requirement for ESIAs to be conducted prior to such developments being given Government approval. Also, there is currently no procedure for conducting ESIAs.

# 3. MAIN ISSUES FOR FORESTRY DEVELOPMENT

This section describes the main general issues relating to forestry development in Suriname. The forestry development strategy relating to these issues is described in section 5. Issues identified during this study have been divided into three main areas; (i) General Government Policy Development; (ii) Development of Government Forestry Functions; and (iii) Development of Environmental & Conservation Policy. These are described below:

## 3.1 General Government Policy Development

### *3.1.1 Creation of an Integrated Land Use Policy*

A Planning Law was enacted in 1972 but was never effectively implemented. An integrated land use policy and associated land use plans are essential for consistent forestry development. A priority, therefore, is the implementation of a National Land Use Policy. The development of the Policy should involve relevant Government Organizations, appropriate private sector interests and also NGOs involved in land management, environmental and social issues. Such a policy would help prevent potential land use conflicts, such as between agriculture and forestry in coastal areas or between protected areas and logging in the south.

### *3.1.2 Improved Definition of Responsibility between Government Bodies*

The multi-sectoral nature of forestry means that implementation of many regulations and policies requires involvement of several Government organizations. In the past, this has led to several conflicts between Ministries, including conflicts over mining rights which have been issued without consultation with the LBB, and land which has been registered for non-forestry uses by the State Land Registry and Ministry of Agriculture, again without consultation with LBB. There are even cases where forestry concessions have been granted without MNR approval (Cullinan, 1996). Not only must responsibilities of Government bodies be made clear, but they must be respected. For an effective forest service there must be efficient coordination and collaboration with other Government departments and clear definition of each organization's responsibilities.

### *3.1.3 Economic Development of the Interior*

Raw materials for the timber trade are harvested from the interior, however resident populations often derive relatively little in benefits from industry or Government. They are largely untouched by policy making in the capital and by Government services, such as health and education, that are common on the coast. Sizer and Rice (1995) promote the strengthening through funding, of four existing bodies in order to increase the participation of interior communities in Government decision making. These bodies are the District Councils, The Council for Development of the Interior, The Association of Village Leaders in Suriname and the Meetings of the Paramount Chiefs of the Maroons. The success of increasing participation of interior communities in policy making has a strong influence on the success of forest policy. The recent unrest in the interior had a considerable detrimental effect on the forest industry and it is important that mechanisms are developed for improved participation of interior communities in policies that affect their livelihoods.

### *3.1.4 Making Foreign Assistance More Effective*

Coordination of donor activities is required to ensure the most effective use of donor funds. Considering the Netherlands' dominance in foreign aid, effective coordination of activities with those funded by the Netherlands, is necessary. Several of the activities proposed in this study require coordination with those proposed by the Netherlands in order to avoid duplication. Coordination is

discussed further in section 5 but examples of potential duplication include the development of an effective forest authority and forestry training programmes.

## 3.2 Development of Forest Policy, Administration and Management

### 3.2.1 Forest Policy

There is no Government Forest Policy document in Suriname and this must be recognized as a hindrance to development of the forest sector. A forest policy is required to act as a framework for both Government and private sector forestry activities. A document (Larsen, 1996) was prepared through discussions within LBB, which identified four goals for forest policy; sustainable forest management, economic production of forest products, good environmental management and a contribution to social and economic well-being of the country. Although the GoS is responsible for preparing a forest policy, inputs from other interested parties are needed; if policy is to be effective, it will need their cooperation. In addition, policy should be reviewed periodically to incorporate any changes in the forest sector. The document by LBB would appear to be a useful tool for stimulating further discussion and policy formulation.

### 3.2.2 Revising, Amending and Passing Forestry Legislation

There are two main pieces of legislation that affect the development of the forest sector. The Forest Management Act and the Draft Forest Management and Authority Law. To make the Forest Management Act effective and bring it up to date, amendments and supporting need to be drafted and enacted. There are also several amendments proposed by Cullinan, (1996) that could be incorporated including:

- introducing clear and effective penalties for poor forestry practices;
- increasing royalties and other forestry fees to cover the costs of regulatory activities of a forest service and revising the nature and method of collection of royalty fees to encourage efficient use of the resource and make evasion difficult;
- creating a Forest Fund in which forest fees are paid;
- removing the regulation restricting extension of a concession to once only;
- inclusion of concessions with an area greater than 150,000 ha;
- review the current system of Exploration Licence holders in which holders have first rights to acquire the concession as this does not allow free bidding for concessions;
- introducing a requirement that EIA's be performed for developments that have a significant impact on the forests;
- provisions for community-based forest management.

The rationale behind the Draft Forest Management and Development Authority Law was to provide a legal framework for the control of large concessions. A moratorium on new concessions has made it redundant and there are strong arguments for having one set of legislation that covers all concessions. Cullinan, (1996) recommends amendments to the present Forest Management Act rather than an additional law.

### 3.2.3 Improvement of Forest Service Control

An effective government forestry institution is required to monitor, control and promote the development of the forest sector. The LBB is no longer a functioning forest authority and a radical restructuring is required if it is to meet the challenges of sustainable forest management. The LBB is presently not able to supervise, control or administer the use of the nation's forests, and uncontrolled

and illegal logging is widespread. It is estimated that 50 percent of log production is not recorded or regulated. Most LBB staff are under-qualified and with 80 percent of the budget being spent on salaries, infrastructure and equipment have been neglected and they are either inoperative or in very poor condition. Motivation of employees is low, mainly due to poor salaries. Not surprisingly, most employees take additional jobs to ensure a living wage

There is a consensus that the capabilities of the forest authority must be strengthened, and a number of approaches and types of institution have been suggested. These have been based on a number of studies and proposals (section 2.2.3), including one conducted by SGS and funded by the EU. Three studies were produced on the assumption of a significant increase in forestry activities due to the awarding of several large concessions. At present the GoS has a moratorium on new concessions and it is not known whether large concessions will be granted in the near future. The most recent proposal (MNR/ FAO, 1996) by MNR/ FAO promotes the establishment of a Forest Production Control Project within the LBB. Strategies for developing an effective forest service are discussed in section 5.2.1.

### 3.2.4 Increasing Forest Revenue to Government

Royalties and other revenue collected from the forest industry have historically been low due to infrequent re-valuations of royalty rates coupled with inflation and evasion of payment. In 1996 only a thousandth of LBB's costs were met by revenue. Sizer and Rice (1995) calculate that even if all area fees and royalties were collected they would be less than US$100,000, this being about one sixth the cost of running LBB in 1996. Royalty rates were increased in 1996 but it is not known whether it has been possible to enforce the new rates.

If a self-funding forest service is to be successful, revenue will need to cover running costs, replacement costs, investment in infrastructure and, in addition, there should be some payment to general government treasury as a return on the state forest resource. The royalties and other revenues will need to be levied at a rate that will cover this. However, calculation of this rate is complicated by uncertainties about the future including the level of production by the industry, the area under concession and the level of evasion. Issues needing clarification include how revenue will be divided between the forest service and the general government treasury, and the structure through which it will be administered.

### 3.2.5 Government Measures to Encourage Sustainable Forest Management

Much of the land designated as production forest and presently harvested is managed in an unsustainable manner under ICLs or HKVs. These leases are too short term to encourage responsible forest management and they do not require any inventory or harvesting planning. Concessions are also awarded for too short a period, initially for 20 years, which is only one rotation or less as prescribed by the CELOS Management System. These short contracts encourage "mining" of the forest rather than long term, responsible management.

The CELOS system could be promoted as a model for harvesting but it requires further development to be generally adopted as a silvicultural practice in production forest. Its planning and management quality as undertaken by most logging operators needs significant improvement. If only the governmental side of the forest sector is strengthened, but not the private sector, then sustainable forest management is not going to be effective

Legally enforceable standards for forest management are required. Although an attempt was made to incorporate the CELOS management system manuals into a contract for a large scale concession for Berjaya, Cullinan (1996) notes that they are of little value in setting enforceable standards. A Code of Practice similar to that drafted by the Guyana Forestry Commission could be produced.

### 3.2.6 Improving Information on the Forests in South Suriname

Most of the forests in the timber belt have now been granted as concessions and expansion of the forest industry to the forests in the south is likely. Information on these forests is limited and a broad reconnaissance inventory, which if undertaken in cooperation with the proposed Dutch funded ecosystems survey would give some of the information required for rational national land use planning. More detailed inventories of those areas identified as suitable for logging could be carried out by prospective concessionaires under an Exploration Licence.

### 3.2.7 Greater Involvement of Forest Peoples in Forest Management & Policy

The current Forestry Management Act of 1992 and other legislation give little recognition of the customary rights of Maroon and Amerindian people in the interior. These communities claim about 500,000 ha of forest for their use and demand greater involvement in decisions on the issuing of mining and forestry concessions. Without the cooperation of forest people, it will be impossible to enforce proper management of these forest; besides their involvement is also likely to be a major issue for certification. A more participatory mechanism, for the involvement of communities in the management of their traditional forest lands, is required.

A further issue relating to forest people is the granting of HKVs to traditional leaders who can then exploit timber in their locality. Unfortunately, this has been abused by many leaders through logging companies being invited and charged to exploit the timber on the land covered by the HKV. There is a need for the development of fair community based decision making and resource management systems.

### 3.2.8 Increasing the level of Expertise in the Forestry Sector

The observed lack of skilled forestry technicians and professionals is a hindrance to development of both the private and public forestry sectors. Training courses at all levels of academia are available yet demand is almost nil. The reason for this is thought to be the poor pay and working conditions that characterize a career in forestry in Suriname. The manpower needs of neither the public or private sector are known and future demand is impossible to predict without knowing the rate of expansion and the level of management that will be required in the forest sector. However, even at present there is a shortage of skilled foresters and this must be taken into account in plans for development, through training of Suriname nationals in forestry and in the short-term through providing expatriate foresters to fill essential positions.

### 3.2.9 Encouraging Investment in Forestry

For the forest sector to make a greater contribution to the Suriname economy, additional investment will be required and much of this will have to be sought from outside the country. In March 1996, a new Investment Act was submitted to Parliament which provides incentives to both foreign and domestic investors across all sectors. The abolition of foreign exchange controls has been recommended as a further way of increasing external investment (Flaming, 1996).

Recent investment proposals from three Asian companies have met with much controversy, highlighting the need for a transparent selection procedure and the screening of companies' financial and environmental performance when selecting holders of concessions, be they foreign or domestic companies. With safeguards, foreign investment should be encouraged as without it there is unlikely to be a rapid expansion either in the size or quality of the wood processing industry. This is particularly true of exports, as foreign companies are heavily export orientated and it is exports which will drive any expansion of the forestry industry sector as domestic supply is already met. In 1994, exports of

plywood by Barama, a joint Malaysian-Korean company amounted to 68 percent of the value of total wood products and logs exported from Guyana. (Sizer, 1996).

## 3.3 Development of the Forest Industry

### 3.3.1 Encouragement of Sustainable Harvesting Practices

Poorly organized harvesting can have a devastating effect on forests. Roads fragment the forest into smaller areas as they act as barriers to certain animals and plants. On certain soils, the construction and presence of roads will greatly increase sediment loads in rivers. Harvesting itself, if poorly planned, will result in unnecessary damage to the residual stand and will have a profound effect on the structure and species composition of the forest.

Increasing the capacity of the GoS to regulate the forestry industry should be undertaken in conjunction with improving the abilities of the industry to conduct logging in a sustainable manner. At present, the level of management and planning of logging are very low, with only Bruynzeel, a parastatal, planning harvesting and producing management plans.

Low impact logging methods involve a number of activities that require a level of expertise that is not available in the industry. Areas for harvesting need to be defined, inventoried at management and pre-harvesting intensities, roads must be carefully planned and constructed, tree location maps need to be prepared, skid trails organized, trees directionally felled and tractors to winch from stump to trail whenever possible. If certification is an objective of the EU and GoS, then these methods and others will need to be introduced to the industry.

### 3.3.2 Improvement in Quality and Efficiency of Wood Processing Industries

The forest industries of Suriname have lacked sufficient capital for over a decade and this is reflected in the present use of old and worn-out machinery associated with poor conversion efficiencies. Also, most mills are working at significant under-capacity, labour efficiencies are abysmally low and there is little specialization by product. In addition to poor economic efficiency, the industry produces goods of poor quality, many of which are not acceptable to international markets. Logs are often badly handled and wood products are often poorly finished and are also often stored in unsuitable conditions leading to further problems, such as warping and splitting. Lumber of poor quality in turn lowers the quality of products made by down-stream industries, such as joineries. Management and accounting practices are poor, which further compromises the profitability of the industry.

### 3.3.3 Mobile Mills: Improved Utilization Efficiency and Control

Mobile sawmills and walk about sawmills produce lumber of reasonable quality at competitive prices. They provide a livelihood for the small entrepreneur in the interior and often use logs left in the forest. As with the fixed saw mills, maintenance and operator skills need to be improved. Neither the number of mobile mills nor their capacity is known and there needs to be greater control and monitoring of their operations Also, walk about mills, which use chain saws, produce a high level of wood waste and are, therefore, inappropriate for processing high value timbers.

### 3.3.4 Improving the Marketing of Suriname Timber & Logs

Most of Suriname's processed timber is used on the local market but there is considerable potential for increasing exports. The most profitable export markets are those with the most restrictive environmental requirements and so an investigation of the viability of "green labelling" is necessary. Timber testing of common, but presently non-commercial species, should be undertaken to broaden

the range of species harvested, taking advantage of information from neighbouring countries. A recent Belgian funded study at CELOS tested the timber properties of forty lesser known species.

Producers complain of being unable to obtain world market prices and this could be improved with greater access to information on world timber prices. This would put local merchants in a stronger position when negotiating export contracts. A recommendation is that Suriname becomes a member of the ITTO and the timber industry has already offered to fund membership (Flaming, 1996). Further information on timber prices or timber properties can be obtained from neighbouring countries, such as Guyana and French Guyana.

### 3.3.5 Investigating and Marketing Non-Timber Forest Products

A possible option for increasing financial return from the forest and giving a continuous income for local people, is the marketing of non-timber forest products. There is information on traditional uses of such products but the commercial potential of most of these products is not known. Some activities are underway including arts and crafts, research into medicinal plants and ecotourism. When viable non-timber products are identified, further work will be required to ascertain the levels of use that are sustainable. A legal framework covering intellectual property rights over genetic resources is required to ensure that Suriname benefits from the use of its biodiversity.

## 3.4 Environment & Conservation

Suriname contains ecosystems of international importance and high levels of biodiversity. Low population and, in recent decades, a declining economy have left large areas relatively untouched by human development. Improvements in the economy in recent years has resulted in increased pressure on Suriname's natural resources through an expansion of mining, agriculture and aquaculture and a corresponding need for a strengthening of environmental protection and nature conservation. Recognition of the global importance of Suriname's natural resources has led to a number of donor assisted projects either being implemented or planned. These are discussed in section 5.2.2.

### 3.4.1 The Creation of a Framework Policy for Environment & Conservation

Environmental management and nature conservation activities are divided between a number of ministries and departments. Presently, duplication of responsibilities and activities exist and there is a need for GoS to produce a comprehensive policy framework for nature conservation and environmental protection. Responsibilities of the various organizations involved in these activities need to be clearly defined and mechanisms for coordination created.

### 3.4.2 Strengthening of Nature Conservation

The legal and administrative framework for the Government's role in nature conservation is well established and an impressive number of protected areas have been created which cover about 5 percent of the land area. A National Conservation Strategy was finalized in 1990 but unfortunately, due to the limited finances and equipment, the Government through the Nature Conservation Division of LBB has limited ability to meet it's full responsibilities. During the unrest in the interior much of the infrastructure associated with conservation areas was destroyed and this has further affected the Division's ability to effectively manage conservation of nature. However, a basic administration is operating, due largely to a dedicated staff and cooperation and funding from NGO's and other donors.

Effective nature conservation relies on there being sufficient information on the extent and composition of different ecosystems. It is thought that only 1 to 2 percent of the country's flora and fauna have been described. Little is known of the ecosystems of southern Suriname and this lack of information means that sites for conservation are not selected in an objective manner.

To ensure the sustainable use of resources and a return to the nation, new developments in the field of nature conservation require regulation through new legislation. Developments include biodiversity prospecting, management of genetic resources and coastal zone management.

### *3.4.3 Support for Environmental Protection Activities*

In the past, many initiatives in environmental protection have arisen through the activities of NGOs, such as CI Suriname and SvSS. In the past environmental protection and pollution control have been neglected by the Suriname Government, although it is gaining greater prominence. At present a NEAP is being finalized, with assistance by the OAS and is likely to lead to the formation of a National Environmental Council, a National Environmental Management Agency and relevant legislation and the IDB is likely to fund such activities.

Suriname is a signatory to several international environmental conventions. Under the Convention of Biological Diversity is required to enforce the use of ESIAs for projects that are likely to have significant adverse effects on the environment. There is adequate expertise in the country to evaluate ESIAs but there is a need to create guidelines for conducting ESIAs.

# 4. PRIORITIES FOR COOPERATION FOR EU

## 4.1 Introduction

An outline of the main EU policy documents relevant to forestry development in Suriname is presented. These are examined in relation to national forestry and environmental priorities for Suriname and proposed main priority areas for cooperation with the EU are presented. The relevant EU policy documents discussed are: EU Guidelines for Forest Sector Development Cooperation (1996); The 1995 Council Regulation (EC) No. 3062/95 on operations to promote tropical forests and The EU-Suriname National Indicative Programme (draft).

### *4.1.1 EU Guidelines for Forest Sector Development Cooperation*

The EU document "Forests in Sustainable Development" describes eleven general principles for forest sector development cooperation. These are divided into four groups: Policy, Social, Economic and Environmental.

The EU policy principles are directed towards promoting compatibility of national and regional forest policies, considering forests as an integral part of a broader land use policy and respecting customary rights of use and ownership.

The EU social principles relating to forest development concentrate on: the equitable use of resources; the recognition of special cultural and social features and their associated needs; participation of all stakeholders; integration of disadvantaged communities and equal participation of men and women in development.

Two economic principles are described by the EU for development cooperation: first, the promotion of the private sector and second, the determination and valuation of environmental costs and benefits.

The EU environmental principles for development cooperation are: the avoidance of harmful effects on the environment and biodiversity and secondly, the enhancement of the environmental resource base and maintaining biodiversity for future generations.

### 4.1.2 Council Regulation on Promotion of Tropical Forests

While the Council Regulation No. 3062/95 refers specifically to the budget line established to promote tropical forests (known as the Tropical Forestry Budget Line B7-6201) it also provides a useful indication of EU policy in this area. In broad terms, it seeks to promote the conservation of tropical forests and notes the need to coordinate with international initiatives, such as the Tropical Forestry Action Plan (TFAP) and the International Timber Trade Organization (ITTO). Specifically it prioritizes the following:

- conservation of primary tropical forests;
- sustainable forest management, but excluding commercial logging of primary forest unless it is small-scale and community-based;
- development of certification systems;
- support to forest peoples;
- capacity building and institutional strengthening at the local and national level;
- strategic and adapted research;
- development of buffer zones;
- development of forest management plans.

These priorities are sufficiently broad in scope to encompass most of the priorities identified for Suriname, however, the restriction on support to large scale commercial logging should be noted. This is obviously a politically sensitive area, given that the EU could run the risk of being accused of supporting deforestation.

### 4.1.3 Compatibility with EU - Suriname National Indicative Programme (NIP)

The draft NIP, which the consultants have seen, states that the two priority areas for EU assistance to Suriname under the Lomé Convention are:

- infrastructure support to the productive sector;
- support to the private sector.

Infrastructure rehabilitation and development is the chief priority in terms of expenditure. Support to the private sector is envisaged through assistance for the establishment of a Surinamese Trade Promotion Organization (SPTO) and technical assistance to the private sector, including advice on assessment of environmental impact. The environmental and forestry sectors are not directly mentioned in the NIP.

## 4.2 Development Strategy an EU Forestry Cooperation Programme

In the absence of a forest policy document, the main goal used to prioritize the themes is taken from the 1993-96 Development Plan (in Larsen, 1996) which stated "[To promote] the management and use of the forest resource as the base for sustainable production, industrialization, regional development and employment" Using this goal and the criteria in the EU documents, six general themes for potential EU cooperation have been identified. It is proposed that the following order or priority for potential themes be considered by the EU and the GoS:

- develop a strong Forestry Regulatory Institution;
- improve the Information on the composition and potential use of the forests of Suriname;
- encourage sustainable forest management in the private sector;
- improve the efficiency and marketing of the wood processing industry;
- develop the capacity of forest communities to manage their forest.

A justification for this order of priority is given in the following sections. The following theme was also considered as high priority but is not directly related to the sector and partly taken up by BID:

- create an effective and coordinated capacity for land use and management of the environment and conservation.

### 4.2.1 Develop a Strong Forestry Regulatory Institution

This is considered to be the top priority area of support, as without an effective enabling policy environment and institutional capability it is not possible to carry out other activities, such as certification, community forest management and regulation of timber concessions. It is also a necessary pre-condition for the development of private sector activities along internationally acceptable lines. It is acknowledged that measures are needed on a number of fronts e.g. donor coordination, a more general land use policy, however, the focus should be on the Forest Service/ FDA. General objectives for programmes would include:

- to integrate forest policy into a comprehensive land use policy;
- to create a comprehensive forest policy with full participation of all stakeholders and draft necessary associated legislation;
- to develop a financially self-sufficient forest service able to effectively regulate forest logging so as to ensure that forest operations are carried out in a sustainable manner.

The following themes (4.2.2. to 4.2.4.) are complementary to this central theme and create the necessary periphery of a regulatory institution by generating the necessary information basis on forest resources and potential (4.2.2.), help the private sector concessionaries to improve their management practices (4.2.3.) and improve the marketing and commercialization of forest products (4.2.4.).

### 4.2.2 Improve the Information on the composition and potential use of the forests of Suriname

To manage the forest resources, it is necessary to know about their composition. Information, on a broad scale, exists for the timber belt but there has been no systematic inventory of the south of Suriname. This is where any major expansion of harvesting activities will be located and, for planning purposes, it is logical to have this information prior to allocating new concessions. This theme is compatible with two of the Council Regulations, namely the promotion of strategic and adapted research and the development of forest management plans and its relevance to the EU policy principles.

This has been given a lower priority than the preceding two themes as it will mainly affect future forest use rather than present forest use. The information generated from such a programme will allow the rational zoning of forest into productive and protected areas and will provide essential information for general land use planning. Objectives include:

- to provide sufficient information to allow sustainable forest management;
- to provide information that will ensure the rational use of land in Suriname to the greatest benefit to the nation.

### 4.2.3 Encourage sustainable forest management in the private sector

The Government sector has been given priority over the private sector, as there is need first for a strong Government forest institution which can monitor, regulate and promote the private forest sector. However, it is essential, in the long run, that there is a thriving, profitable private forest sector if funds, through royalties and other taxes, are to support an effective forest service. Activities related to the harvesting element of private forestry have been given a higher priority than wood processing as they

have greater effect on the environment and on forest communities. Objectives of programmes under this theme could be:

- all production forest areas managed under the principles of sustainable forest management;
- private forestry making a greater contribution to the national economy;
- to take advantage of the marketing benefits from certification or "green labelling".

### 4.2.4 Improve the efficiency and marketing of the wood processing industry.

Although this has been given a lower priority than activities associated with improving logging practice as it has a smaller social and environmental impact, the programme has considerable potential in increasing the return to private industry from the forest sector. General objectives to be considered are:

- to increase the contribution of forest industries to the national economy;
- to improve the efficiency and profitability of the industry through better utilization of the raw material and higher human productivity;
- to improve exports through improved quality of produce and marketing, particularly to high price markets requiring certified or "green labelled" timber.

### 4.2.5 Support to Forest People

This is an important theme as forest communities claim rights to about 500,000 ha of forest land. However, logging on such land is often undertaken by private companies and as such forestry on community lands will benefit from general improvements in logging practice. There are other issues to consider. Assistance to these communities would simultaneously help some of the most marginalized communities in Suriname and help to ensure the conservation of their environment. At the time of writing, a government Commission was still considering the issue of land rights for forest people. Subject to the recommendations of the Commission, there would be scope for assistance in building up local institutional structures to manage the forests (including non-timber forest products) for the benefit of the entire community. Certain general objectives that should be incorporated are:

- Secure the right of forest peoples to manage their traditional lands and to be involved in decisions affecting the areas in which they live.
- Pilot a model of community-based sustainable forest management which permits economic development without destroying the distinctive cultural identity of forest peoples (Amerindians, Maroons).

### 4.2.6 Create an effective and coordinated capacity for land use and management of the environment and conservation

For forest policy and planning to be successful it needs to be an integral part of an effective land use policy and planning framework. An effective and rational land use system would ensure that land was designated for uses which would maximize the return to society. This would be entirely compatible with the EU principles and also a number of the priorities in the Council Regulation on Promotion of Tropical Forests.

Suriname is endowed with a high level of biodiversity and ecosystems of international interest. Improvements in the state of the economy has increased pressure on the natural resources and activities in environmental protection and nature conservation need to be strengthened. There are many options for useful work in nature conservation in Suriname. It is proposed that the EU take a strategic approach, supporting basic activities such as inventories and institutional support rather than developing specific protected areas. General objectives should include:

- to obtain the information needed to sustainably manage the natural resources of Suriname, both within and outside protected areas and facilitate the sustainable use of natural resources so as to maximize their contribution to the national economy;
- to ensure the conservation of Suriname's rich natural and genetic resources.

# 5. PROPOSED STRATEGY FOR COOPERATION AND COORDINATION

## 5.1 The Themes for Cooperation

In section 4.2, priorities were given to six main themes for potential cooperation. These themes are discussed below and potential areas for cooperation between donors are highlighted and possible interventions identified for consideration by GoS and the EU.

## 5.2 Proposed Strategy for Cooperation

### *5.2.1 Develop a Strong Regulatory Forestry Institution*

To develop the forest sector, the highest priority should be given to improving the capacity of the Government to monitor and regulate forestry activities. Without proper regulation the existing forest estate will be degraded through unsustainable harvesting and its future value to the nation will be compromised. The present forest service, the LBB is no longer effective at managing the forest resources of Suriname.

A number of studies have been conducted to examine the type of institution required for managing forest development (Section 2.2.3). Several options exist for the type of institution that is needed, covering private, parastatal, or a division within LBB, an improved LBB or a combination of some of these. This study favours the creation of a parastatal "Forest Institute" because:

- it would allow higher salaries to be paid than in the civil service and this would allow recruitment and retention of motivated, highly qualified staff;
- it would encourage the rapid creation of an efficient, effective and adaptable organization;
- a parastatal has greater control than a Government department over allocating its expenditure;
- government has greater control over a parastatal than a purely private organization.

Although there is a consensus that change is needed, differences of opinion exist within the Government and also other donors as to the type of organization that would be most effective. The Netherlands have effected, or have in preparation, several projects aimed at developing an institutional forestry capacity within Government. These are aimed at reorganising LBB and transferring most responsibilities of LBB to a new organization. The recent FAO Draft Project Proposal for Forest Production, supports the formation of a Production Control Unit in the form of a foundation. Organizational and legal frameworks are presently being worked out. The Netherlands have also proposed a large project to rehabilitate the forest infrastructure of the present LBB. Other possible inputs include a project to improve forestry training facilities through rehabilitation of the Jan Starke Training Centre.

The concept of the Production Control Unit is regarded, in the framework of this Sector Study, as a primer to create the nucleus of a Forest Institute, creating the regulatory and institutional basis and resolving much of the employment issues with the present LBB. It is the opinion of this study that the Forest Institute be self-financing and cost-effective in the long term. However, during initial years there will be a need for external funding. If the concept of self-finance was accepted, several issues need to be clarified:

- A Forest Institute should be self-financing, revenue must equal running costs and there must also be provision for replacement costs and investment to develop the resource. In addition there must be a return to general government for use of a state resource. The method for assigning revenues to the Forest Institute and the general government coffers must be considered.
- It is imperative that if a full range of services is to be offered by the Forest Institute that revenues must be increased and collected in a cost effective manner to cover operational costs. In addition to an increase in royalty, it is likely that an expansion of the forest industry will be required in the long run. This will require foreign investment and a policy for such investment needs to be clear.

The extent of the responsibilities of the Forest Institute needs clarification through discussions with GoS. The range of services needs to be defined, such as whether the Forest Institute should be involved in expensive operations such as road construction. With limited skilled manpower and uncertain levels of revenue from forest activities, this study suggests a lean organization which contracts out many of its services. A further argument for a lean and basic organization is that the future area under forest harvesting is not known. This will depend on GoS policy regarding concessions, particularly the leasing of large scale concessions.

Further discussions are required between the GoS, notably the MNR, LBB and PLOS and donors as to the nature of the forest service, its optimum structure, the consequences of any change on staffing levels, and to identify appropriate revisions to legislation and policy. The existing MNR/ FAO Forestry Advisory Project is proposing a legal and institutional structure which could form the basis of the Forest Institute, as already mentioned before.

### 5.2.2 Improve the Information on the composition and potential use of the forests of Suriname.

To manage a resource effectively it is essential to have information on the resource at an appropriate level of detail. A suitably structured inventory would provide data for zoning the forest into productive and protected areas and would provide information that would enable planned and efficient exploitation of those areas suitable for timber harvesting. Any forest inventory should be designed to produce data which is comparable with those generated by the FAO inventories in the 1970s. The results of the past inventories in the timber belt and those proposed for the south, would enable the creation of a national forest database. Such a facility would be of considerable use for rational forest conservation and general land use planning. In addition, any major expansion of harvesting will be to the south of the forest belt and reliable inventory information would be of considerable use when negotiating contracts with prospective concessionaires. An activity of the MNR/ FAO Forestry Advisory Project is to "assist the Ministry in finding financial support (a donor) and the professional capability to implement the defined forest inventory programme(s)". This project could perhaps assist in defining the scope and requirements for the inventory.

As a general operation strategy, the inventory which is an activity requiring work over several years, should start with the most urgent areas, i.e. where no accurate information exists and logging is supposed to occur in the foreseeable future. Areas that will not now, or probably ever be, logged can be addressed later or by other projects, e.g. ecosystem inventories.

Tropical rain forests are highly complex ecosystems and, with a few exceptions, very little is known of their ecological dynamics. To allow the development of appropriate management techniques, a level of knowledge of the structure, composition and dynamics of the forest ecosystem is required. A first step would be to undertake a broad ecological inventory. Some surveys have already been conducted along the coastal areas and the remainder of the country could be divided into broad ecological units using remote sensing, such as satellite imagery or aerial photography. Such a project could build on the experience gained from the recent EU Inventory and Monitoring of the Amazon Rainforest Ecosystems of Suriname Project implemented through LBB Nature Conservation Division, which has been evaluated as part of this study. There is a need for coordination to avoid duplication of donor funded activities, as there is planned funding from the Netherlands Government for the LBB Nature Conservation Division to undertake an inventory of ecosystems of the interior.

An option that would improve access to both ecosystem and forestry inventory data would be the inclusion of a GIS. A request was made to the EU by GoS for a study on the inclusion of GIS for forestry. Discussions between the GIS consultant conducting this study and GoS personnel highlighted certain issues. The most important issue is training of personnel in use of GIS, as however sophisticated the GIS, it is of little use without competent operators. If a GIS was considered desirable, there should be development of norms for the system and it should be compatible with systems used in other GoS institutions so there can be easy exchange of information. It should also, if possible, be compatible with any system used by industry (companies such as Golden Star Resources use GIS). It is considered that forestry should have its own GIS system to avoid dependency on other departments and also to ensure that they have control over the quality of data and authority and control over the release of information.

### 5.2.3 Encourage sustainable forest management in the private sector.

Once an effective regulatory system is in place, the GoS would have the ability to monitor and control the activities of the forest industry. A priority would then be to improve the standard of harvesting as this is the activity that most affects the forest ecosystem, and also forest people. Although support to improvements in logging practice is an obvious priority there are potential political ramifications for EU cooperation (section 4.2.4). Funding activities directly supporting logging operations, albeit to encourage sustainable practices, may be politically unacceptable.

Low impact logging methods (such as the CELOS harvesting system) are known and have been tested in a limited operational capacity. Even if certain basic standards for logging are available, the introduction of low impact logging methods to the industry in Suriname will be a long-term and complex process. Such practices involve a high level of organization and planning.

Two projects, funded by the Netherlands, consider the rehabilitation of CELOS research plots and their evaluation, and a pilot operational research project using the CELOS system and implemented through Bruynzeel M.V. If the adoption of the CELOS system by Bruynzeel was successful, a further step could be to obtain certification for the operation. If certification is also an objective of the GoS, then introduction of low impact logging methods, in addition to other practices, is required.

The development of a body of forestry professionals is considered by this study as being a prerequisite for encouraging improvement in the standard of forest management in Suriname. This could act as a professional body, attached to the Forest Institute, determining professional standards for forest managers, supervisors and technicians. It is proposed that an Association of Surinamese Professional & Technical Foresters be formed through one of the existing associations.

### 5.2.4 Improve the efficiency and marketing of the wood processing industry

As domestic demand for wood products is already met, expansion of the industry must be through increased exports. Most of the wood processing industries in Suriname produce low quality products which are not accepted on international markets and so there is a need for improving standards within the industry. Also, marketing of produce that is acceptable for export is a constraint, with exporters complaining of low prices for Suriname timber (Flaming, 1996). If the concept of a self-financing Forest Institute is accepted by GoS and the EU, then the scope of the activities of the Forest Institute will be largely determined by the profitability of the forest industry. The possible direct role of the Forest Institute in this programme should be assessed.

It is proposed that a programme be directed at improving the management and technical skills of those in the wood processing industries, rather than focusing on specific companies. Three potential activities have been identified to support a programme of improvement, two directed at established, relatively large wood processors and one at mobile mills.

A strengthening of NATIN to develop its capacity to introduce a programme aimed at improving the skills within wood based industries is proposed. This would be directed at both the supervisory and operator level, The second proposal involves developing an advisory, training and marketing facility

attached to the Chamber of Commerce. This would provide expertise to advise wood industries on techniques and marketing, a workshop to enable techniques to be demonstrated and a small number of apprenticeships for training courses.

Mobile and walk-about mills allow an opportunity for those with relatively little capital to establish a forestry business. Unfortunately, their production is much reduced by break downs and lack of spare parts. Output from these mills can be of good quality and is often cheaper than produce from the larger mills. However, their mobility makes it difficult to monitor and control their activities. There is no available information on their number or output and it is proposed that a preliminary investigative study be conducted to collect basic information. It is envisaged that support will be through a service centre which will provide spare parts and also advice as to how to improve practices. This should be self-financing in the long-run and assistance to such mills should be dependent on operators meeting certain business standards, such as paying Government taxes and royalties.

### 5.2.5 Develop the capacity of forest communities to manage their forest

This has been given a low priority due to the relatively high costs of supporting the development of community forestry management. Communities in the interior are small, scattered and relatively inaccessible. Also, in recent years (4-5 years), logging on community lands is often undertaken under contract by commercial companies rather than the communities themselves. Thus, strengthening the Government's forestry institutions (5.2.1) and improving logging practices by private companies (5.2.3) should also consider the interest of local communities.

Two main activities are considered important for improvements of community forest management. The first is to develop community decision making mechanisms and the second to expand the products and services that generate income from the forest.

Management of community forests needs to be directed through a representative local body. Development of such bodies should involve the forest communities themselves and NGO's who have experience in developing local capacities.

The second proposed activity promotes the diversification of forest uses, considering the need of interior communities for constant income; the development of markets for non-timber forest products and services is regarded one possibility.

### 5.2.6 Create an Effective and Coordinated Capacity for Land Use Planning and Management of the Environment and Conservation

This theme is treated last not because it deserves less focus but because it is not a sector issue. It is recognized, though, that the development of a National Land Use Policy and supporting legislation is a priority for any forestry development. Land use plans and land use zoning, where areas are designated for activities which yield the highest return to society, are effective planning tools for minimizing such conflicts.

The Planning Act of 1973 provided a legal basis for land use planning but has never been put into effect. The Minister of Planning is in charge for the preparation of a sustainable development policy and a National Development Programme including a National and associated Regional Development Programmes. Although a National Planning Office and a Planning Division exist they do not have the capacity to develop the necessary National and Regional Development Plans. Considerable discussion is required with PLOS and other GoS institutions to ensure that the responsible organization is structured and located in an efficient manner, that effective internal and external procedures for the organization are adopted and that training and equipment needs are identified. Possible locations could be with PLOS or the Office of the President.

Suriname contains a wealth of biodiversity and contains ecosystems of international conservation importance. The country's economy has been developing rapidly over the last few years and activities, such as agriculture, aquaculture and mining have intensified. The Government's capacity to monitor,

control and mitigate the effect of such activities needs to be increased to meet the challenge of these new developments. At present, there is no comprehensive legal framework for environmental protection and conservation and responsibilities are spread over a number of organizations. Yet, a strong environmental protection capability will be required to support the monitoring and regulation of forestry activities and others with potentially high environmental impact. Several possible areas of cooperation were identified during this study. A first priority is to provide a sound legal and institutional structure for effective environmental protection. These are described in two project outlines. To support environmental protection activities further a possible project was identified which would support environmental protection and nature conservation through provision of information, training and laboratory facilities. However, the OAS is currently funding the NEAP and the IDB has shown interest in supporting environmental management. To avoid duplication, there may be areas of greater priority for cooperation between the EU and GoS than supporting environmental protection.

It should be mentioned at this point that BID is now considering a stronger involvement in the Environment Sector in Suriname, and a reassessment of this theme is necessary before any further steps are taken to identify a EC financed programme in this sector.

Suriname is endowed with high biological diversity and internationally significant ecosystems. Nature conservation presently receives funding through inputs to the Nature Conservation Division of LBB from the WWF Netherlands, the EU and proposed and presented funding by the Netherlands Government. At present, the Netherlands is funding a rehabilitation of the infrastructure of some nature reserves through STINASU. UNDP also has a project in nature conservation. Enhancing the Capacity of Suriname to Conserve Biodiversity Project which through the MNR, LBB Conservation Division and STINASU, has enabled the implementation of small but high priority conservation activities. The project is designed also to define the scope for a larger GEF funded initiative. Should all these projects be implemented there will be considerable support to nature conservation. Otherwise a priority for cooperation would be the strengthening of the LBB Nature Conservation Division, which would include policy development, such as updating the National Conservation Plan, institutional strengthening and improving the management of protected areas.

A further but lower priority area for potential cooperation identified by the study team was enhancing the public's awareness of the importance of the environment. Most of the population live in the agricultural and urban areas on the coast and have little appreciation of the environmental issues that affect the interior. An information programme on radio and television, providing news on environmental issues in Suriname was considered a cost-effective method of reaching the populace. SvSS was considered a possible partner as it is involved in similar work.

## 5.3 General Considerations for Cooperation

In addition to the considerations for cooperation which relate to specific themes there are a number of general considerations. Any GoS/ EU programme should consider the overall GoS donor policy and should also consider the potential for regional cooperation.

### *5.3.1 The Government's Donor Policy*

The Netherlands dominate foreign aid to Suriname, providing about 80 percent. Their commitment to the forestry sector includes activities managed by the FAO. The EU has recently funded a GIS supported study, "Ecological and Economic Assessment, Inventory and Monitoring of the Amazon Rainforest Ecosystems of Suriname" and UNDP has funded a relatively small project establishing flying forest control units. There are few other international donor organizations directly involved in forestry, although many of the about 100 NGOs have an interest in the sector, particularly through its role in community development. As an objective of the GoS is to diversify donors, there is considerable scope for other donors to be involved in cooperation in the forestry sector. In the field of environmental protection and nature conservation there is more diverse donor support, donors include the IDB, OAS, WWF, CI, WRI and in the past the Canadian Government.

### 5.3.2 Cooperation and Coordination between Donors

Donor coordination is essential in all efforts to reorganize and strengthen the forest service to enable it to effectively regulate logging and wood processing industries. Several proposed or imminent FAO/Netherlands projects are involved in improving the regulatory and operational capacity of the forest service, including the creation of a Forest Control Unit, and one to be implemented with funding from the Netherlands is involved in upgrading forestry training. These projects are directly relevant to some of the interventions proposed for the EU by this study hence cooperation is essential.

### 5.3.3 Regional Cooperation

Mechanisms for regional cooperation include the Amazon Cooperation Treaty, which has the objective of promoting joint and rational use of natural resources of the nations in the Amazon basin. The EU (DG 1B) has supported ACT projects in protected area management, in which Suriname has participated, and in demarcation of indigenous people's territories. Regional cooperation and coordination can also be promoted through CARICOM, especially the commercial aspects of forestry.

There is a wealth of experience and information on forestry in the region and it would be worthwhile for Suriname to forge stronger links with forestry institutions in neighbouring countries, particularly Guyana and French Guyana. FAO have a project planned, The Forest Policy Study in the Caribbean Countries, which aims at identifying the main issues and priorities relating to forest policy and assisting collaborative approaches in the region. However, at a simpler level, even a basic exchange of forestry related information would be desirable, as much that has been produced in French Guyana and Guyana is relevant to Suriname.

In addition, there is much that can be learned from developments in neighbouring countries. The Forestry Commission in Guyana is presently being re-structured and monitoring their progress could be useful for guiding such a process in Suriname. Large foreign logging companies are already operating in Guyana and the experience gained by both the Government and the companies could be of use to the GoS in policy making.

# 6. PROPOSED NEXT STEPS

## 6.1 Main Topics for Discussion

There are certain issues fundamental to developing a programme of forest sector development cooperation between the EU and the GoS. Two broad topics for discussions could include:

- the GoS' future policy on large scale concessions and foreign investors. This will affect the strategies to be pursued in the reorganization of the forest service and the scope of the Forest Institute. Policy decisions will also determine the development of the private sector, including exports of wood products;
- the GoS' future intentions regarding Amerindian and Maroon land claims. Uncertainty on policy and future actions affects the planning of community forestry initiatives (some form of land tenure is required for people to take a long-term view of an enterprise), promotion of certification (certification requires clear definition of forest communities lands and rights) and also foreign investment in forestry (disputes with forest communities are not beneficial for either the forest peoples or the company).

## 6.2 Proposed Interventions

During the workshops, meetings and discussions that were conducted for this study a number of potential interventions we identified. These have been briefly mentioned in section 5.2 as part of the

potential cooperation strategy. For each of the possible projects, an outline has been produced with a tentative budget. More complex institutional projects may require further pre-feasibility and also feasibility studies, whereas more straightforward information gathering projects need neither. A summary of each potential project's requirements, based on the consultants' views are described below.

During the elaboration of the study, the view of theme (vi): Create an Effective and Coordinated Capacity for Land Use Planning and Management of the Environment and Conservation" has changed since IDB took up part of the issues and it became more unlikely that EC may invest in this sector. The creation of a land use planning capacity, on the other hand, is less connected to the forest sector and therefore treated with less priority in this context.

Themes (ii) to (iv) are closely connected to theme (i). In fact theme (i) is the core of activities and strategies to be developed, and can directly build upon the basis of the PCU presently being established as an emergency action. In fact the mentioned themes (ii) to (iv) are complementary to (i) and provide the forestry institution with the means and mandates to work effectively together with the main stakeholders of the sector, in planning (ii) and management (iii) of forest related activities and in the rational utilization and commercialization of forest products (iv). Theme (v) is regarded as an activity that requires a more long-term approach and is, although important and a prerequisite for sustainability, not an immediate priority.

Some of the projects under the different themes require, according to the assessment of this study, further preparation in the framework of pre-feasibility or feasibility studies.

**(i) Develop a Strong Regulatory Forestry Institution**

| *Title of Proposed Project* | *Pre-Feasibility* | *Feasibility* |
|---|---|---|
| Establishment of a Forest Development Authority | Yes | Yes |

**ii) Improve the Information on the Composition and Potential Use of the Forests of Suriname**

| *Title of Proposed Project* | *Pre-Feasibility* | *Feasibility* |
|---|---|---|
| Execution of Regional Forest Inventories and Management Plans for Southern Suriname | No | No |
| Inventory of Ecosystems of the Guyana Shield | No | No |

**(iii) Encourage Sustainable Forest Management in the Private Sector**

| *Title of Proposed Project* | *Pre-Feasibility* | *Feasibility* |
|---|---|---|
| Pilot Green Labelling or Certification with Bruynzeel M.V. | No | No |
| Creation of an Association of Surinamese Forest Professionals & Technicians | No | No |

**(iv)Improve the Efficiency and Marketing of the Wood Processing Industry**

| *Title of Proposed Project* | *Pre-Feasibility* | *Feasibility* |
|---|---|---|
| Training & Education Facilities for the Wood Processing Industry | No | No |
| Implementation of a Long -Term Advisory & Training Project for Wood Based Industries | No | No |
| Service Centre for Walk-About & Mobile Mills | No | Yes |

**(v) Develop the Capacity of Forest Communities to Manage their Forest**

| *Title of Proposed Project* | *Pre-Feasibility* | *Feasibility* |
|---|---|---|
| Promotion of Integrated Community Development & Forest Management | No | Yes |
| Basic Study of the Utilization of Non-Wood Forest Products | No | No |

**(vi)Create an Effective and Coordinated Capacity for Land Use Planning and Management of the Environment and Conservation**

| *Title of Proposed Project* | *Pre-Feasibility* | *Feasibility* |
|---|---|---|
| Creation of a Capacity for land Use Planning | No | Yes |
| Baseline Legislation for Environmental Protection & Management | No | No |
| Establishment of an Environmental Management Agency | Yes | Yes |
| Establishment of an Environmental Information, Research & Training Facility & Laboratory | No | No |
| Enhance National Capacity for Nature Conservation | No | No |
| Enhance Education & Public Awareness of the Environment | No | No |

# FOREST POLICY TRINIDAD AND TOBAGO

by Antony R. Ramnarine

## 1. FORESTRY IN TRINIDAD AND TOBAGO

## 1.1 Country Description

### *1.1.1 Situation and Size*

The islands of Trinidad and Tobago lie between 10o 2' and 11o 21'N latitude and 60o 30' and 61o 56' W longitude. Trinidad, which is roughly rectangular in shape, lies approximately 18 km east of Venezuela on the South American continent and occupies the southernmost portion of the West Indian islands. Geographically and biologically it is a part of South America. Its average length is 80 km, its average breadth 59 km, and its surface area 4,769 sq. km The sister island of Tobago lies north-east of Trinidad and is separated therefrom by a channel approximately 35 km wide. It measures 42 km in length and 12 km at its widest portion. Together, both islands cover an area of 512,835 hectares.

### *1.1.2 Physical Features*

Topographically, Trinidad can be divided into five distinct regions formed by three ranges of hills running east to west and the intervening lowlands comprising of terraces, alluvial plains and swamps. In the north and south, there are ranges of hills which run almost parallel to each other. Of these, the Northern Range which is an eastward spur of the Andes in South America is the most elevated with a general elevation of over 150 metres and maximum heights of 940 metres at El Cerro Del Aripo and 936 metres at El Tucuche. Although the highest points in the Southern Range are 304 metres at Trinity Hills and 250 metres at Moruga Hills, only a very small area reaches over 150 metres. Occupying almost a central position in the island is the Central Range which runs in a broken diagonal line from Manzanilla in the east to Pointe-a-Pierre in the west. The highest point is Mt. Tamana at 308 metres. Most of this range has an elevation between 60 and 150 metres.

The elevation of the lowlands is about 60 metres to sea level. The Caroni Plain situated between the Northern and Central Ranges is sub-divided by the Smart Ridge into the Nariva Plain in the east and the Naparima Plain in the west. In each of the plains there is a large swamp; the Caroni Swamp in the Caroni Plain, the Oropouche Lagoon in the Naparima Plain and the Nariva Swamp in the Nariva Plain.

The whole island is well drained by a large number of rivers, most of which flow in an easterly and westerly direction. The largest rivers are the Caroni, the Ortoire and the Oropouche.

Tobago consists of a Central Main Ridge which forms a sort of backbone and reaches an elevation of 576 m. The ridge of hills which is approximately 30 kilometres in length runs in a north-east to south-west direction for nearly two-thirds of the length of the island. The south and western portion of the island is relatively flat and comprises a coastal plain of coral terraces. In general, most of the land lies below 300 metres.

### *1.1.3 Geology and Soil*

Trinidad is structurally a part of the South American continent and is neither volcanic nor coralline as are other West Indian islands and this accounts for its rich flora and fauna.

Igneous rocks, which yield an excellent soil cover more than half of Tobago while sedimentary rocks cover approximately one-third of the island. In general, there is a small portion of tertiary rock in the south-west. Most of the land in Tobago is from coral limestone.

### 1.1.4 Climate

The climate of both islands is tropical with two distinct seasons, a dry season (January to May) and a wet season (June to December) except for a short spell of three weeks in September-October, which is locally known as the petite careme. The driest months, March and April, average less than 5 cm of rainfall. The wettest months are June, July, August and November, each averaging 20 cm or more of rainfall. The average annual temperature is 29°C in the day and 23°C at night. The relative humidity of the air is always high, often approaching saturation point at night. The average number of sunshine hours per day is seven, and this number is fairly constant throughout the year.

### 1.1.5 Biodiversity

For its size, Trinidad and Tobago has a very rich flora and fauna:

| *Type* | *Birds* | *Mammals* | *Reptiles* | *Amphibians* | *Butterflies* | *Plants* |
|---|---|---|---|---|---|---|
| Number | 420 | 100 | 70 | 26 | 617 | 3000 |

Several species are on the rare or endangered list and these include the leatherback turtle (*Dermochelys coriacea*), the ocelot (*Feliz pardalis*), the manatee (*Trichechus manatus*), the pawi (*Pipile pipile*), several species of finches as well as the blue and yellow macaw (*Ara ararauna*).

### 1.1.6 Heritage

The country's heritage consists of:

- 43 Government forest reserves;
- 13 Government wildlife sanctuaries;
- 61 proposed national parks and other protected areas;
- 3 private wildlife sanctuaries;
- 91 wetland areas;
- freshwater and brackish swamps;
- marshes;
- savannas;
- historical and archaeological sites;
- rivers;
- beaches;
- coral reefs;
- waterfalls;
- mud volcanoes;
- large underground reserves of oil and natural gas;
- a pitch lake; and
- abundant sand, gravel, limestone and other mineral deposits.

### 1.1.7 Forest

Forest lands cover approximately 50 percent of Trinidad and Tobago. Of this, 42.6 percent belong to the state, the remainder being private. See table 1.

***Table 1. State-owned Forested Lands of Trinidad and Tobago (ha)***

| *Category* | *Trinidad* | *Tobago* | *Total* | *%* |
|---|---|---|---|---|
| Land Area | 482,729 | 30,106 | 512,835 | 100.0 |
| Proclaimed Forest Reserves (3.5)* | 130,187 | 3,956 | 134,143 | 26.2 |
| Un-proclaimed Forest Reserves (8)* | 12,593 | - | 12,593 | 2.4 |
| Other State Forest | 65,723 | 5,993 | 71,716 | 14.0 |
| Total | 208,503 | 9,949 | 218,452 | 42.6 |

There are 35 Proclaimed Forest Reserves and 8 Un-proclaimed Forest Reserves in Trinidad and Tobago.
**source: FRIM-National Forest Inventory (1980)**

The state forest consists of plantations of teak (*Tectona grandis*), Caribbean pine *(Pinus caribaea*) and mixed hardwoods. See table 2.

***Table 2. State Forest/Plantation***

| | *Teak* | *Pine* | *Mixed Hardwoods* | *Total* |
|---|---|---|---|---|
| Area (ha) | 9,015 | 4,210 | 2,029 | 15,254 |

The natural forest of Trinidad and Tobago is classified by forest types. Table 3 describes the types, area and distribution.

**Table 3. Indigenous Forest Types in Trinidad and Tobago**

| *Indigenous Forest Types* | *Area (hectares)*[1] | *Location*[2] |
|---|---|---|
| Evergreen Seasonal | 98,180 | North East & South East |
| Semi-evergreen Seasonal | 13,930 | Southern Extremes |
| Deciduous Seasonal | 3,620 | Western N/Range |
| Dry Evergreen | 500 | East Coast |
| Seasonal Montane | 930 | Northern Range |
| Montane | 21,620 | Northern Range |
| Swamp | 16,730 | Coastal |
| Secondary | 16,630 | Widely distributed |
| Total | 172,140 | |

Source: 1. W.S. Chalmers (1992) 2. Forestry Division

The mixed hardwood production forests of Trinidad and Tobago yield timber for local consumption. See table 4.

***Table 4. Total Annual Roundwood Harvested (1990-1996) $m^3$***
(From forest reserves, state lands and Class I removals from private lands)

| *Year* | *1990* | *1991* | *1992* | *1993* | *1994* | *1995* | *1996* |
|---|---|---|---|---|---|---|---|
| Volume | 31,996 | 21,180 | 35,893 | 13,713 | 11,122 | 24,295 | 25,019 |

The teak and pine plantations also yield timber in the form of thinnings and final crop for local use and for export. See table 5.

**Table 5. Teak and Pine Harvested (1990-1996) $m^3$**

| Species | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|---|---|---|
| Teak | TANTEAK | 16,869 | 19,564 | 13,525 | 10,700 | 30,653 | 28,596 | 20,045 |
| | Forestry | 567 | 1,073 | 1,724 | 252 | 540 | 2,881 | 2,636 |
| | Sub-Total | 17,436 | 20,637 | 15,249 | 10,952 | 31,193 | 31,477 | 22,681 |
| Pine | TANTEAK | 3,491 | 1,061 | 5,739 | 11,340 | 15,439 | 19,732 | 8,583 |
| | Forestry | 754 | 40 | 3 | 48 | 2 | 105 | 1,804 |
| | Sub-Total | 4,245 | 1,101 | 5,742 | 11,388 | 15,441 | 19,837 | 10,387 |
| | Total | 21,681 | 16,350 | 20,991 | 22,340 | 46,634 | 51,314 | 33,068 |

Source: Forestry Division

However, the combined local supply does not satisfy the demand for sawn lumber. Table 6 shows the volume and value of sawn lumber imported and exported from 1984-1995.

***Table 6. Sawn Lumber Imports And Exports, 1984-1995***

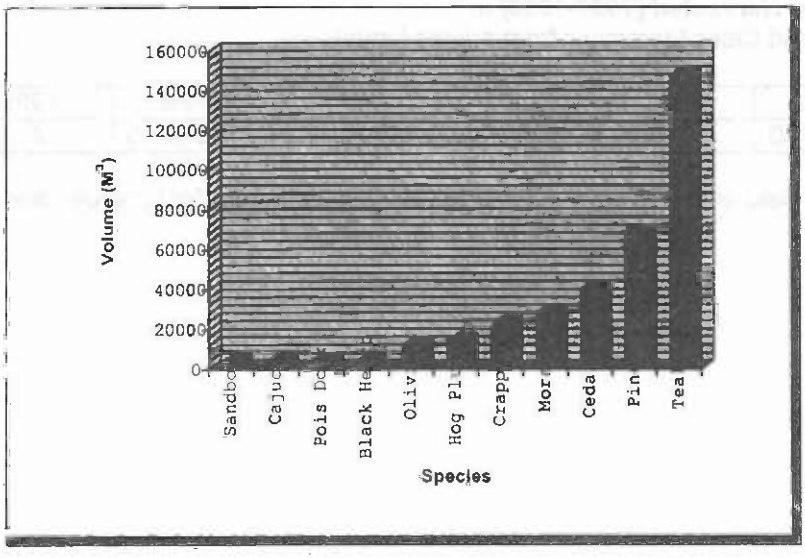
| Period | Imports | Exports[1] | Total Value of Imports | Total Value of Exports |
|---|---|---|---|---|
| | Cubic Metre | | $000 TT | |
| | (1) | (2) | (3) | (4) |
| 1984 | 287,253 | 1,145 | 133,804 | 134 |
| 1985 | 170,933 | 1,323 | 82,048 | 179 |
| 1986 | 114,258 | 974 | 80,421 | 93 |
| 1987 | 134,608 | 1,403 | 65,034 | 234 |
| 1988 | 33,597 | 1,362 | 26,479 | 404 |
| 1989 | 40,050 | 3,312 | 32,465 | 1,051 |
| 1990 | 49,194 | 5,083 | 35,742 | 7,619 |
| 1991 | 37,163 | 606 | 60,135 | 2,726 |
| 1992 | 22,613 | 618 | 40,598 | 2,793 |
| 1993 | N/A | 3,391 | 35,248 | 5,679 |
| 1994 | N/A | N/A | 55,677 | 5,075 |
| 1995 | N/A | N/A | 76,678 | 9,926 |

[1]*Include, re-exports of imported sawn lumber*

*Source.* CSO *(1995)* $1US = $6.30TT

Figure I shows the accumulated volume of timber harvested from local forests by species for the period 1990-1996.

***Figure 1. Total Roundwood Removal for Major Species (1990-1996)***



## 1.2 The Forestry Sector in Trinidad and Tobago

The public forestry sector in Trinidad is managed by the Forestry Division of the Ministry of Agriculture, Land and Marine Resources and addresses the management, conservation and sustainable development of the country's natural renewable resources. In Tobago, control is under the Secretary for Agriculture in the Tobago House of Assembly. The State forests are considered to be the patrimony of all citizens.

Forest management is based on the principles of multiple use and sustained yield, optimizing the role of the forest as a provider of goods (such as timber, water, wildlife, handicraft, etc.) and services (national parks, forest fire protection, rural employment, environmental conservation, etc.) for the benefit of our society.

Specific goals and targets of the Forestry Division are:

- manage the natural forest for production and conservation purposes;
- expand commercial plantations for the sawmilling industry;
- manage wildlife and their habitats on a sustainable basis;
- develop and maintain national parks and other protected areas;
- protect the forest estate from fires, pests and other threats.

Strategies for accomplishing these goals and targets are:

- conduct integrated forest research, planning and management;
- implementation of the bulk sales system for plantation grown timber;
- acceleration of the regeneration programme for teak, pine and mixed hardwoods;
- regulate the sawmilling and other wood processing industries;
- revision and updating of legislation related to forest resources, national parks, wildlife and sawmills;
- acquire the necessary technology and equipment to combat forest fires, the mealy bug pest and other potential threats to the forest.

The projected benefits of these actions are expected to be:

- production of timber to adequately supply raw materials to all downstream industries;
- proper management of the watersheds to allow a constant and adequate supply of potable water;
- a sustainable yield of wildlife;
- the enhancement of ecotourism;
- increase in rural employment and community-based forestry;
- reduction in flooding and social costs;
- increased revenue from sale of local forest produce and products.

The major laws which control forestry activities are:

- the Forests Act (Revised 1980);
- the Conservation of Wildlife Act (Revised 1980);
- the Sawmills Act (Revised 1980);
- the State Lands Act (Revised 1980) and the State Lands Forest Produce Rules;
- the Agricultural Fires Act (Revised 1980);
- the Environmental Management Act (1995);
- the Litter Act and other less relevant Acts.

## 1.3 Major Programme Areas

Major programme areas of the Forestry Division enhance natural renewable resources management through improvements in forestry resources management planning practices.

Focal areas within the Forestry sector hinge around the management of the land resource and the utilization of products from the sector which generate income. In order to achieve this objective the following goals and targets are being pursued.

**Forest Policy and Planning**

Undertake period forest policy review and update.
Prepare management plans so as to establish a basis for sustainable development of forest resources. Existing legislation is being reviewed and updated.

**Forest Management**

Manage the natural forest for protection and production purposes.
Commercial plantations are being expanded.

**Forest Products Utilization**

Improve the utilization of timber resources and promote the use of non-wood forest products.

**National Parks/Recreation**

Expand the base for appreciation, enjoyment and understanding of the country's natural heritage.

**Wildlife Research and Management**

Develop plans and programmes so as to ensure conservation of wildlife resources.

**Forest Protection and Extension**

Execute fire prevention and control programme, as well as law enforcement, for protection of forest resources; educate and increase public awareness of the role of forestry in environment conservation.

**Infrastructure/Support Services**

Maintain buildings and offices, vehicles, access roads and bridges.

**Management Information Systems**

Develop management systems to manage human resource, as well as natural resources.

**Computerization of Operations**

Improve the use of technology to effect data storage, analysis, retrieval and desk top publication.

## 1.4 Activities being undertaken

Major activities currently being undertaken are to:

- conduct forest policy review;
- prepare conservancy and unit (range) plans for the country;
- manage the sale of timber through the periodic block system and the bulk sales system;
- expand commercial plantations of teak, pine and mixed hardwoods;
- maximize the utilization of timber and other forest produce, and encourage downstream industries;
- establish new parks and maintain and upgrade existing ones;
- develop and implement programmes for conservation of wildlife, including farming;
- improve the programme of forest fire prevention and control;
- deter and detect offences by enhanced law enforcement efforts;
- increase public awareness of the role of forestry;
- develop management information system and computerize operations;
- review and update forest resources legislation.

## 1.5 Scope of Forestry in Trinidad and Tobago

The main activities in which the Forestry Division is involved, are:

- Forest Management
- Wildlife Management
- National Park Management
- Watershed Management
- Forest Extension, Information and Training

In general, an integrated and sustainable approach to resource management is used since it is almost impossible to physically separate the individual activities on any large area of forest land. Nevertheless the activities are described separately, as they reflect the scope of Forestry in Trinidad and Tobago.

### *1.5.1 Forest Management*

- Regeneration programme of teak, pine and mixed hardwoods is the main Divisional activity in Trinidad. Trees are planted for production and protection purposes. Second rotation of teak and pine have begun. In some localities, the taungya system is used during establishment.
- In Tobago, there is emphasis on the establishment of mixed local hardwoods in the planting programme, at the exclusion of exotic species.
- Silviculturally controlled harvesting and timber sales are conducted for commercial use in Trinidad. Mixed hardwoods are sold to private sawmillers and woodworkers; teak and pine to Tanteak on a preferential basis. Wood that is processed is used mainly for construction and furniture making. Harvest waste supports a small charcoal manufacturing industry.
- In Tobago, there is a ban in the sale of forest produce (except balata fruits via permits) from State owned forests.
- Teak seeds are harvested for sale to local and foreign buyers, mainly from Latin American countries. Caribbean pine cones are sold for handicraft and decorative uses.
- Forest fire prevention and control is a major activity during the dry season. The Director of Forestry chairs the National Forest Fire Plan Committee. Fire guardians and recruits of the Civilian Conservation Corps assist in operations. The Forestry Division continues to encourage NGOs and CBOs to assist.
- Promotion of non-wood forest products continues in the supply of handicraft raw material, extractives for local medicines and insecticides.
- Windbreaks and shelter-belts are managed for the protection of inland areas from hurricanes and storms.

- Support services for all forestry activities are provided through road, building and vehicular repairs and maintenance, financial management and personnel management by staff of the Forestry Division.
- The Forestry Division observes the recommendations of Agenda 21, the Inter-Governmental Panel on Forests and other international agreements, conventions and resolutions on forest management.

### 1.5.2 Wildlife Management

- The Wildlife Section of the Forestry Division controls and regulates hunting of game animals through opening and closing of hunting seasons.
- Wildlife farming is a growing business with popular species such as agouti (*Dasyprocta agouti*), deer (*Mazama americana*), lappe (*Cuniculus paca*) and *Quenk (Tasyassu tajacu*)
- The wildlife sanctuary at Caroni Swamp is the home of one of the national birds, the Scarlet Ibis (*Endocimus ruber*) which roosts in the mangrove forest and encourages bird viewing, eco-tourism and educational visits.
- The Nariva Swamp has been declared a Ramsar site and has been the object of much debate and conflicts in land use which have now been resolved satisfactorily.
- The marine turtle management programme in north-east Trinidad involves a community-based approach toward endangered species conservation.
- Trinidad and Tobago is a member of the Convention for the International Trade in Endangered Species of Wild Fauna and Flora (CITES) which utilizes a local inter-agency network comprising the Fisheries Division, Customs, Airport Authority, Coast Guard, Immigration and Animal Health Division for its enforcement.
- A Wetlands Committee under the chair of the Director of Forestry has been appointed by Cabinet to formulate a wetlands policy, prepare a plan for the Nariva Swamp (a Ramsar site) and make recommendations for the designation of other such wetlands of international significance.

### 1.5.3 National Parks Management

- A proposal system of National Parks and other Protected Areas comprising 61 sites was established in 1980. A number of these areas have been developed and are being managed by the Forestry Division.
- Major development works have recently been completed at San Fernando Hill National Landmark, and others are in progress at Caroni Swamp National Park, both funded by the Inter-American Development Bank (IDB). Legal and administrative attention is being given for the establishment of a Board of Management (including NGOs and CBOs) to manage these parks.
- The World Bank is involved in a project to identify new parks for development and to enact new National Parks legislation.
- Biodiversity conservation occurs through protected area management, as well as through guidelines from the Convention on Biological Diversity.

### 1.5.4 Watershed Management

- Agroforestry and hillside farming techniques are conducted at three Hillside Demonstration Stations on the Northern Range.
- The World Bank is involved in a watershed management project aimed at preparing plans for the management of critical watersheds on state and private lands on the western portion of the Northern Range (near urban centres).

- The Forestry Division continues to apply water conservation policies and strategies to produce a constant and adequate supply of potable water to be distributed by WASA. These include restrictions on timber harvesting in certain zones, ongoing reforestation and biological pest control.
- The Forestry Division acknowledges the slope/land use classification recommended in an early FAO study for soil and water conservation. Other watershed protection techniques, such as terracing, check dams and greening, are applied.
- The Forestry Division observes the resolutions, polices and strategies of the San Jose Declaration (1996) on Water Resources Assessment and Management.

### *1.5.5 Forest Extension, Information and Training*

- Extension methods of practicing agroforestry are displayed to farmers and private forest owners (especially on hillsides).
- The Forestry Division conducts an ongoing environmental education programme through lectures, publications and the media. School lectures and exhibitions are regularly held with full forestry participation.
- Formal training leading to a two-year diploma in Forestry can be had at the Eastern Caribbean Institute of Agriculture and Forestry (ECIAF).
- In-service training of forest officers is conducted on a periodic basis by senior forestry staff and external lecturers.
- Public-private partnerships are sought wherever possible to empower local communities and stakeholders in forest conservation.

## 1.6 Role of the Private Sector and NGOs

The private sector has traditionally played a very active role in forestry enterprise in Trinidad and Tobago. Due to Trinidad's relatively large productive forests, combined with demands for lumber from a comparatively affluent society, the sawmilling industry developed from the 1930's to the extent that there are 65 licensed private sawmills and one government-owned mill. This has led to further downstream activities in furniture manufacturing, house and boat building which altogether represents a vibrant private sector involved in forestry business.

In more recent times, there has been much encouragement for private entrepreneurs to become involved in ecotourism which is one of Government's top priorities.

Other meaningful activities receiving the attention of private investors are wildlife farming, the handicraft industry, private forestry, Christmas tree production and import substitution of wood for match production.

There is also a renewed effort to encourage private forestry for productive and protective purposes, including the provision of incentives to private land owners.

The involvement of environmental NGOs has increased significantly in the last 20 years through greater public participation in forestry affairs. Organizations, such as the Field Naturalists Club, the Trinidad and Tobago Biological Society, the Caribbean Forest Conservation Association and the Point-a-Pierre Wildfowl Trust, make meaningful inputs into forest policy and have helped to control and reverse the destruction of the Nariva Swamp, an internationally important wetland area, as well as to assist in forest fire protection is some areas.

These NGOs also wield a great deal of influence which makes them a potentially powerful lobby, and sometimes represent Trinidad and Tobago at international fora on forestry and the environment.

# 1.7 Trinidad and Tobago's Socio-Economic Profile

The following is a brief description of Trinidad and Tobago's main socio-economic indicators.

## 1.7.1 Economic Indicators

### 1.7.1.1 Economic Structure for Trinidad and Tobago

The economic structure for Trinidad and Tobago is summarized in table 7 presented below the form of selected economic indicators (source: EIU Country Report. 3rd quarter 1997).

***Table 7. Economic structure***

| *Economic Indicators* | *1992* | *1993* | *1994* | *1995* | *1996* |
|---|---|---|---|---|---|
| GDP at current prices TT$ bn | 23.1 | 24.9 | 28.7 | 31.0 | 33.0[a] |
| Real GDP growth [b] % | -1.1 | -2.6 | 5.2 | 2.6 | .28[c] |
| Consumer price inflation (ay) % | 6.6 | 10.7 | 8.8 | 5.2 | 3.3 |
| Population m | 1.24 | 1.25 | 1.25 | 1.27 | 1.28[a] |
| Export fob US$ m | 1,691 | 1,500 | 1,778 | 2,456 | 2,505[c] |
| Imports fob US$ m | 996 | 1,953 | 1,037 | 1,869 | 2,153[c] |
| Current accounts US$ m | 138.9 | 113.1 | 217.8 | 293.8 | 70.4[c] |
| Reserves excl gold US$ m | 172.2 | 206.3 | 352.4 | 358.2 | 541.7 |
| Total external debt US$ m | 2,375 | 2,131 | 2,221 | 2,556 | 1,858[a] |
| Debt-service ratio, paid % | 26.4 | 32.4 | 24.8 | 14.8 | 16.8[a] |
| Exchange rate (av) TT$:US$ | 4.25 | 5.35 | 5.92 | 5.95 | 6.01 |

*August 8, 1997 TT$ 6.16:US$1*

| *Origins of gross domestic product 1995* | *% of total* | *Components of gross domestic product 1994* | *% of total* |
|---|---|---|---|
| Agriculture Private consumption | 55.3 | | 2.1 |
| Oil | 27.9 | Government consumption | 15.7 |
| Manufacturing | 8.6 | Gross fixed investment | 13.1 |
| Electricity, gas & water | 1.6 | Exports of goods & services | 41.6 |
| Distribution, hotels & restaurants | 14.4 | Imports of goods & services | -25.7 |
| Transport & Communications | 8.6 | Total | 100.0 |
| Financial services | 11.7 | | |
| Government | 9.7 | | |
| Total including others | 100.0 | | |

| *Principal exports 1995* | *US$m* | *Principal imports 1995* | *US$m* |
|---|---|---|---|
| Mineral fuels | 1,170 | Machinery & transport equipment | 630 |
| Chemicals | 611 | Food & live animals | 226 |
| Manufactured goods | 322 | Manufactured goods | 224 |
| Food & live animals | 138 | Mineral fuels | 124 |

| *Main destinations of exports 1995* | *% of total* | *Main origins of imports 1995* | *% of total* |
|---|---|---|---|
| USA | 42.9 | USA | 49.9 |
| Caricom | 20.5 | UK | 7.2 |
| Canada | 1.8 | Germany | 5.9 |
| | | Canada | 5.1 |

[a] EIU estimate. [b] Measured at factor cost. [c] Official estimate.

#### 1.7.1.2 Medium Term Outlook and Financing Requirements

Data for 1995 and projections for 1996-1999 are summarized in table 8 below (Source: Central Statistical Office, Central Bank and Ministry of Finance).

***Table VIII: Selected Economic Indicators 1995 – 1999***
**(in percent unless otherwise stated)**

| *Real GDP growth rate* | *1995* | *1996* | *1997* | *1998* | *1999* |
|---|---|---|---|---|---|
| Investment/GDP | 2.4 | 3.2 | 3.7 | 5.9 | 6.2 |
| National Saving/GDP | 16.5 | 15.4 | 22.4 | 19.0 | 16.5 |
| Central Government: Saving/GDP | 20.2 | 15.4 | 16.2 | 17.8 | 17.7 |
| Private Sector: Saving/GDP | 2.5 | 3.2 | 3.7 | 5.2 | 4.8 |
| Central Government Fiscal Balance/GDP | 0.2 | 1.5 | 0.8 | 1.8 | 0.5 |
| Public Sector Borrowing Requirement/GDP | -1.1 | -1.5 | 0.8 | -2.1 | -1.0 |
| BOP Current Account/GP | 5.3 | 0.0 | -2.8 | -1.2 | 1.3 |
| Debt Service Ration | 15.0 | 14.1 | 18.7 | 10.2 | 8.9 |
| Interest Service Ratio | 5.4 | 7.6 | 9.1 | 7.8 | 7.1 |
| Change in Net Official Intl Reserves (-increase) (US$Mn) | -40.5 | -138.0 | -113.9 | -90.5 | -153.0 |
| Net Official Intl Reserves (US$Mn) | 305.0 | 443.0 | 556.9 | 647.4 | 800.4 |
| Gross Official Intl Reserves (US$Mn) | 360.8 | 481.4 | 575.9 | 661.9 | 814.9 |
| Import Cover (Months) | 2.8 | 3.1 | 3.2 | 3.4 | 4.0 |

Mobilization of domestic savings and investment becomes critical if the economy is to achieve the levels of real economic growth expected over the medium term. It is estimated that national savings as a percentage of GDP will increase from 15.4 percent in 1996 to approximately 18 percent by 1999. This will be achieved through continued fiscal discipline, and the restructuring of the financial sector to make new financial instruments available on the market. Capital formation, as a percentage of GDP, is targeted to move from 15.4 percent in 1996, sharply increase to 22.4 percent in 1997 and level off to 16.5 percent by 1999. To ensure that the targeted growth in investment is achieved, significant reform of the Public Sector Investment Programme (PSIP) will take place over the medium term. The objective will be to improve the human resource and other capabilities of all government agencies, thereby increasing the IP implementation rate of projects.

### *1.7.2 Social Indicators*

The principal social indicator reflecting government's policies is the unemployment percentage. The official figure provided in November 1997 is 14.5 percent compared with 17.9 percent in 1995, the lowest in over a decade.

One of government's policies is to emphasize social infrastructure programmes to improve the quality of life, reduce the level of unemployment and alleviate poverty.

Forestry is one of the main avenues for meeting these objectives through direct employment and the provision of raw material for downstream industries, such as sawmilling, furniture manufacture, handicraft making, house and boat building. Opportunities also exist in ecotourism for tour guides, guest houses and art. Overall, it is estimated that over 10,000 people find employment in local forestry-related jobs. This excludes the vast numbers of others who are involved in the importation, sale and processing of imported timber, lumber, plywood, paper and paperboard.

### *1.7.3 Sustainable Development Indicators*

A country's sustainable development may be gauged by both local and international parameters.

A major imperative of the Government of Trinidad and Tobago is the implementation of policies to promote sustainable economic growth, improve economic resilience while building a diversified economy and enhancing the quality of life of all citizens.

A major conditionality of the international community is also sustainable development in all sectors. Forestry is based upon the principles of multiple use of forests and sustained yield of goods and services for the nation. It is essential that the various agreements, conventions and resolutions arising from international meetings continue to guide our development.

In a twin-island state such as ours, we must ensure that carrying capacities are known, tolerance of the environment is not exceeded and a balance be struck between industry and the environment in order for sustained development to continue.

In November 1997, the Government reported a 3.4 percent decrease in unemployment from 1995, a GDP which was increasing annually and a stable exchange rate, all of which are socio-economic indicators in favour of a sustainably developing Trinidad and Tobago.

# 2. CURRENT FOREST POLICIES

## 2.0 Introduction

The following is an inventory of current government forest policies in their broadest usage regulating the forestry sector in Trinidad and Tobago:

- Forest Policy (1942)
- Manifesto of the United National Congress (1995) and National Alliance for Reconstruction (1995)
- Medium Term Policy Framework (1997-1999)
- Food and Agriculture Policy (1994)
- Ministry of Agriculture, Land and Marine Resources Strategic Plan (1993-1995)
- Forestry Division Strategic Plan (1995-1997)
- TFAP Forest Policy and Forest Management (1991)
- The Draft National Environmental Policy (1997)
- Stated Policies of the Minister of Agriculture, Land and Marine Resources
- Tobago House of Assembly Act (1996).

These will be examined in detail below.

## 2.1 The Forest Policy (1942)

### *2.1.1. Historical*

The importance of sustainable management and multiple use of forest resources, and the more specific role of forestry in watershed management were recognized as early as 1765 when the first forest reserve in the western hemisphere, the Main Ridge of Tobago, was created by the Young Commission through its setting aside of 6,000 acres (2,475 hectares) of land for "the protection of the rains".

The Forestry Service of Trinidad and Tobago was created in 1901 through the formation of a one-person branch of the then Crown Lands Department. The unit became a separate governmental agency in 1918 called the Forest Department, and later in 1960, became the Forestry Division.

Today it exists as the Forestry Division within the Ministry of Agriculture, Land and Marine Resources.

### 2.1.2 Forest Policy 1942

The first forest policy was formulated in 1942 at which time Trinidad and Tobago was a British Colony. Its function was to enable the Forest Department to look after the forests of the Colony in the best interests of the community. This is reproduced in its original form in Appendix 1.

There is no evidence from the records to show that policy formulation was done on the basis of any public consultation. Instead it is apparent that the interests were self centred and driven from within the colonial domain.

This policy remained in effect for decades, and in 1979, the then Conservator of Forests, the late Dr. Bal Ramdial, commissioned a review and update of the forest policy on the basis of the significant social, economic, political and technological changes which had taken place in the country since 1942.

## 2.2 The Forest Resources Policy (1981)

There were several general and specific conditions which justified the revision of the 1942 policy and characterized the pillars of change in the formulation of a new policy in 1979. This draft policy was prepared and revised until it became known as the Forest Resources Policy (1981).

In general, there are four major changes. These are summarized below:

### 2.2.1 Political

In 1942 Trinidad and Tobago was a British Colony. On December 04, 1961 it gained internal self-government. On August 31, 1962 the country became independent with Dominion status. On September 24, 1976 it became a Republic within the Commonwealth.

The 1942 Forestry Policy was heavily biased toward managing the forest to produce timber. The country was often referred to as a "colony" and the agency responsible for the management of the Forest was the "Forest Department". In 1981, because of the ministerial structure of the public service, it was the Forestry Division of the Ministry of Agriculture, Lands and Food Production, placing it in much closer contact with agriculture than in the past.

Due to the republican status of the country, policies and strategies were to become more locally oriented to address the needs of Trinidad and Tobago.

### 2.2.2 Social

In 1942, the population at large did not appreciate and understand the values and benefits of forests and forestry. In 1981, Trinidad and Tobago society was significantly more educated and aware of the role of forests, some agitating for preservation while others demanded greater exploitation. Forestry had gained recognition as a science with better trained staff employed to service the needs of a growing population which made increasing demands for timber, water, wildlife, outdoor recreation, as well as forest land itself for housing, agriculture, quarrying and other competing uses.

These situations clearly showed up the omissions and deficiencies in the 1942 Forest Policy.

### 2.2.3 Economic

During the colonia era, Trinidad and Tobago was expected to produce raw materials for export to Britain for further processing there, hence secondary industries were virtually non-existent. This

situation changed dramatically over the years with the advent of a number of secondary and service industries producing a myriad of products for local and foreign markets.

The traditional emphasis also shifted from oil production to a more diversified economy which moved to increase its contribution to the Gross Domestic Product (GDP).

### 2.2.4 Technological

Trinidad and Tobago, in general, and the forestry industry, in particular, made tremendous technological strides between 1942 and 1981. Mechanization replaced old manual and animal powered forms of timber harvesting and processing, skidders invaded the forest creating much greater demand for timber, and treatment allowed greater utilisation of raw materials. The use of non-wood forest produce also increased to meet the growing local and export markets.

While technological development was welcomed, new policies were required to ensure environmental degradation was kept in check and the balance of nature maintained.

### 2.2.5 General

In general, other key areas were addressed to highlight significant differences between the 1942 and 1981 situations:-

- Land use patterns -there existed a need to equitably address reservation, public-private ownership patterns, conflicts in land use, squatting, agroforestry, urban development and zoning.
- Security and law enforcement - the situation was characterized by outdated legislation, low penalties, increased risk in forested areas and low public cooperation.
- Administrative and institutional factors - there was need for human resource development, training, and holistic management of the natural renewable resources.
- Research - areas to be addressed included data collection and analysis, applied research, wildlife, forecasting and marketing.
- Forest produce and products - policies were required for forest industrial development, waste recovery, use of non-wood and lesser-known species.
- Natural heritage - new areas were emerging in biodiversity conservation, establishment of a system of national parks and other protected areas.
- Recreation and tourism - demands grew for outdoor recreation, interpretation, eco-tourism.
- Environment examples include pollution control, conservation of natural resources, ecological balance in nature, the environmental lobby.
- Private Forestry - there were needs for good land use, incentives, and legislation.
- Socio-economic factors and human resources - to deal with rural employment, environmental education, motivation, gender issues, poverty alleviation.
- International factors - institutional strengthening to foster cooperation with regional and international agencies, agreements and conventions.

The Forest Resources Policy (1981) format identifies its broad aims and 20 specific objectives for the sector. These are followed by 14 sub-sector policy statements and corresponding strategies to give effect to the stated policies.

A copy of the Forest Resources Policy (1981) aims, objectives and sub-sector policies is attached as Appendix II.

Most of these aims, objectives, sub-sector policies and strategies reflect the Forestry Division's role in the 1980 - 97 period in managing the forestry sector, although the 1981 Policy has never received the necessary formal governmental approval.

Although much has been achieved using the Forest Resources Policy (1981), there are two significant features of the policy formulation process and the policy itself which deserve attention.

Firstly, the process of policy formulation between 1979 and 1981 was largely sector-driven, in that the need for an updated policy was identified by the Forestry Division itself, and the committee assigned to the exercise consisted only of forestry professionals who reviewed and revised the Policy. At a later review stage, international forestry colleagues were consulted while local stakeholder participation was kept at a bare minimum.

Secondly, it is significant to note that despite all of the efforts made by the Forestry Division to have the Forest Resources Policy (1981) approved officially by the Ministry and the Government, it has never succeeded. No official reason has ever been given, but the Forest Resources Policy (1981) formed the basis of important plans, such as the National Agricultural Development Plan (1989-1995) and the National Forest Resources Plan (1990-1999), and has been used extensively between 1981 and 1997 to guide the Division's operations and procedures.

Nevertheless, the Forestry Division recognizes that the Forest Resources Policy (1981) has itself become outdated and has identified the need for an updated Forest (Resources) Policy.

## 2.3 The Government Manifesto

### *2.3.1 The UNC Manifesto*

The United National Congress (UNC) is the major partner in the coalition Government of Trinidad and Tobago. Before the last general election in November1995, it had produced a Manifesto which formed the basis of its campaign.

Having won the election, this document was laid in Parliament as the official policy statement of the Government of Trinidad and Tobago.

The UNC Manifesto addresses its approach to policy formulation in the following manner. *"The UNC party government will use policies and strategies which reflect a basic people-centred philosophy for the development of Trinidad and Tobago, in which economic growth will be accompanied by social development and in which a partnership will be fostered between government, business and labour to achieve a better quality of life for all".*

Three of the goals of its policies and programmes which bear directly on the forestry sector are:

- improved employment and income opportunities;
- enhancing the participation of all citizens in the social and economic life of Trinidad and Tobago; and
- improving the physical and natural environment to support sustainable development for current and future generations.

The subject of forestry is addressed under two specific policy headings, "agriculture" and "environment".

The agriculture policy states, *"the basic goals of a UNC Agricultural Policy will be the fullest and most efficient use of our agricultural resources of arable lands, forest and marine potential and human skills, expertise and experience."*

The environmental policy states, *"proper management of our natural resources and environment is absolutely essential for Trinidad and Tobago to achieve sustainable utilization of our environment and natural resources."*

These are concise and reflect the dual thrusts from the Central Government's viewpoint on forestry.

Other sector policies in the Manifesto also impact on the forestry sector. These include policies on the economy, tourism, education and human resource development, unemployment, youth, women and science and technology.

The UNC Manifesto continues to be the basis of all policies regulating Forestry in Trinidad and Tobago.

### 2.3.2 The NAR Manifesto

According to the Tobago House of Assembly elections manifesto of the ruling National Alliance of Reconstruction (NAR) in Tobago, the major socio-economic goals which the NAR is committed to achieving in Tobago includes (among others), *"an environmental protection plan, (the) implementation of which will ensure that the fragile ecosystem of the island is cherished, respected and preserved."*

## 2.4 The Medium Term Policy Framework 1997-1999

The Government's next phase in policy formulation took the form of its Medium Term Policy Framework (MTPF). The current one outlines the macro-economic management policies and sectoral programmes which will be implemented during the period 1997-1999.

### 2.4.1 Medium Term Goals and Objectives

A major imperative of the Government is the implementation of policies to promote sustainable economic growth, improve economic resilience while building a diversified economy and enhancing the quality of life of all citizens. Accordingly, Government has identified the following broad policy goals over the medium term:

- maintaining strong, vibrant and sustainable economic growth;
- generating permanent increases in employment;
- reducing inflation;
- fostering a balanced and equitable society; and
- conserving and safeguarding the environment.

The Agriculture Sectoral Policy is presented in the following way: "The Agriculture Sector has the potential to contribute significantly to Government's national development objectives. Government's policy for the sector will be designed to:

- increase employment opportunities;
- promote national food and nutrition security;
- facilitate an increase in foreign exchange earnings;
- promote sustainable management of land, water, forest and marine resources, which will contribute to social stability and the empowerment rural communities; and
- facilitate the development of agriculture in Tobago."

The Agricultural Sector Policy specifically addresses the forestry sector in the statement, *" In promoting sustainable management of land, water, forest, and marine resources, strategies will include provision of infrastructural support, reviewing and updating legislation relevant to the land and marine environment and liaising with national and international funding agencies for the necessary financial and technical support. Government also will establish a Management Information System to improve the forestry database, as well as promote the sustainable management of natural resources through watershed protection and conservation, development of national parks, and the establishment of programmes for the conservation of wildlife. A management plan for the Nariva Swamp will also be developed and implemented."*

The Medium Term Policy on the Environment states:

*"Improving the nation's environmental performance through the development of a sound legal and institutional base and the promotion of best practices among all sectors of society is a central objective of the Government over the medium term. The strategy to achieve this objective would give priority to strengthening the policy and regulatory framework, enhancing institutional capacity; improving the availability and accessibility of environmental data and information; strengthening environmental awareness and education among the population, and promoting voluntary programmes among industries.*

The strategy would be underpinned by an *"anticipate and prevent" approach which is more cost effective than one which is reactive and remedial in nature. As such, particular emphasis would be accorded to engendering environmentally responsible behaviour in industry and among the population in general. While the strategy would employ a mix of instruments including economic and non-economic incentives, emphasis would be placed on voluntary compliance while developing a strengthened regulatory agenda. In this context, a national programme of public awareness and education would be developed, predicated on the environmental literacy survey and ongoing efforts in this area."*

Other policies similar to those cited in the UNC Manifesto also apply. Altogether these general and specified policies in the Medium Term Policy Framework 1997-1999 influence the formulation of forest policies and strategies.

The principal strategies and measures planned for 1997-1999 for sustainable management in forestry are:

- continued preparation of forestry management plans;
- facilitate management conservation of natural forest for protection;
- production and utilization;
- facilitate the development of a National Parks system;
- continue to manage national wetlands; and
- develop and implement management plan for Nariva Swamp.

## 2.5 Food And Agriculture Policy (1994)

In March 1994, the Ministry of Agriculture, Land and Marine Resources published its Food and Agriculture Policy White Paper for the period 1994-1996, its first since 1978. This policy was developed through a process of consultation and against the background of the Medium Term Policy Framework 1994-1996.

The White Paper consists of five chapters which attempt to -

a. identify the major resources of the sector;
b. report on the performance of the sector against the background of existing policies;
c. identify the major sectoral issues;
d. outline the major policy objectives and strategies to match the issues; and
e. present an implementation schedule.

The natural resources described in (a) refer to agricultural land, wetlands, water resources, forest resources and fisheries resources.

### *2.5.1 The Forest Resources*

The 1994 White Paper identifies the major issues affecting the natural resource and environment as:

- deforestation;
- destruction of wetlands;

- loss of plant and animal biodiversity;
- pollution of land and water;
- pesticide abuse; and
- over-exploitation of the inshore fisheries.

All of the above, either directly or indirectly, relate to the management of the forestry sector in Trinidad and Tobago. The document also addresses economic and social issues, as well as institutional support issues.

#### 2.5.1.1 The policies for the forestry sector

The policies for the forestry sector are outlined as follows:

a. Sustainability of the Food and Agriculture sector depends on the wise use of the natural resource base for farming, forestry and fishing. In this regard, the Government accepts its stewardship responsibility in partnership with all actors participating in the sector.
b. The development of the forestry sector will guide the design of an optimal strategy for the management and utilization of the natural forests. Watershed protection, conservation, national park development and expansion of timber production are also important elements of the National Forestry Action Plan, with private sector participation playing a critical role in the implementation of the Action Plan.

#### 2.5.1.2 Strategies

Some of the major strategies identified were:

a. promote sustainable management of land, water, forest and marine resources, as well as ensuring environmental protection, in particular, watershed protection, conservation, national park development and expansion of timber production;
b. strengthen functional cooperation with Caricom in agriculture, forestry and fisheries development, emphasizing enhanced regional food security; update legislation to protect natural resources and the environment; strengthen regulatory services and also encourage community participation in protection;
c. use public funds to restore damaged areas and also encourage private sector participation;
d. improve management of forest resources;
e. promote the development of farmers', fishermen and foresters' organizations as a means of increasing their sphere of influence on sectorial issues; and
f. introduce a process for consultation within the sector in development of policy.

This draft Food and Agriculture Policy 1994-1996 is currently being revised by the Ministry of Agriculture, Land and Marine Resources.

One of the significant innovations in this policy was its recognition of the importance of stakeholders in the sector and the need for community participation and consultation in policy formulation.

## 2.6 Ministry of Agriculture, Land and Marine Resources Strategic Plan (1993-1995)

The Ministry of Agriculture, Land and Marine Resources embarked on the preparation of its strategic plan in the early 1990s. The process employed required that the widest possible consultations were held and stakeholders had maximum opportunities to influence policy, planning and decision making.

The Ministry of Agriculture, Land and Marine Resources Strategic Plan (1993-1995) addresses the agriculture, forestry and fisheries sectors. Its mission and vision are stated as follows:

> "The mission of the Ministry of Agriculture, Land and Marine Resources is to facilitate sustainable development of Agriculture, Forestry and Fisheries while conserving and enhancing (safeguarding) the environment, strengthening the capabilities of our clients and providing for the achievement of personal excellence and growth of all our employees."

"Our vision therefore is a Ministry providing quality service which is client oriented, innovative, market responsive, information and technology driven, and a caring and progressive employer. Our Ministry will:

a. comprise highly trained and motivated staff working as a team in mutual respect and understanding;
b. strive for increases in productivity through the use of cost effective systems and methods;
c. aim to serve and satisfy our clients with equity, efficiency and courtesy; and
d. seek to involve all our employees in contributing to the determination and realization of our objectives and goals."

## 2.7 The Forestry Division Strategic Plan (1993-1995)

The Forestry Division undertook its strategic planning on the basis of a bottom-up approach and open public consultations with stakeholders drawn from the timber processing industry, hunters, recreationists, environmentalists, other forest users and employees of the Forestry Division. It was also based on the Ministry of Agriculture, Land and Marine Resource's Strategic Plan (1993-1995) as a Forestry sub-sector plan.

The Forestry Division Strategic Plan (1993-1995) identified the main functions of the Forestry Division as:

a. Forest Management (protection and production forestry);
b. Watershed Management (including agroforestry);
c. Management of Historical and National Parks, as well as protected areas;
d. Wildlife protection and management.

It identifies subsidiary functions as:

a. financial resource management;
b. marketing and sales;
c. extension;
d. environmental education and public relations;
e. human resource management; and
f. administration.

The mission of the Forestry Division is *"to sustainably manage our forest resources for optimum outputs of the productive, protective, recreational, aesthetic, scientific and educational values for the benefits of the public."*

The vision of the Forestry Division is the same as the Ministry's, quoted in 2.6 above.

## 2.8 The National Forestry Action Programme (NFAP)

Trinidad and Tobago was one of nine Caricom countries which actively participated in the NFAP exercise between 1990-1992.

The documentation produced was voluminous, but could be condensed into three main categories:

- the main issues affecting forestry and the environment;
- the Country Mission Team report; and
- 75 project profiles.

Sub-sector reviews were conducted, one such being on Forest Policy and Forest Management, the key elements of which are reported below as recommendations:

a. Trinidad and Tobago has a strong forestry tradition and the Forestry Division is generally in tune with current international concepts of sustained development, people participation and environmental stability. However, the existing forest policy statement is too amorphous, and since it has not been formalized, it should be reformulated to focus more clearly on the needs of the sector.
b. It is recommended that the new forest policy of Trinidad and Tobago take into account the following considerations:
    - the maintenance of an optimal area of natural forests for protection of soil and water resources and to ensure a sustained flow of related benefits to the community;
    - the protection and management of state forest resources in a harmonized manner for sustained benefits of timber and other forest products, natural flora and fauna;
    - the promotion of forestry development on suitable lands, in State and private ownership, towards self-sufficiency in forest products and related goods and services;
    - encourage the intensive development of utilization of wood and non-wood forest products for enhancing the nation's economic growth;
    - conduct forest management, silvicultural and utilization research for advancement of the sector;
    - develop and implement a major public education and awareness programme on the role of forestry and related disciplines in social and economic development and environmental conservation.

Since 1992, the Cabinet of the Government of Trinidad and Tobago prioritized the NFAP projects and approved nine of them for early implementation, subject to funding availability.

Despite the consultant's recommendations, the Forest Resources Policy (1981) has neither been approved nor revised to date.

## 2.9 The Draft National Environmental Policy (1997)

The Environmental Management Authority (EMA) in 1997 produced its first draft National Environmental Policy.

The Draft National Environmental Policy (1997) is based on the following principles:

- respect for nature;
- sustainable resource use;
- polluter pays principle;
- precautionary principle;
- non-transfer principle;
- access to environmental information;
- shared responsibility; and
- participatory decision-making.

The specific policy for the forestry sector is quoted in full below:

"Trinidad and Tobago is endowed with rich and abundant natural forests. Apart from direct benefits in the form of wood and non-wood products, these forests provide a wide range of natural functions which are critical to sustaining environmental equilibrium, such as provision of animal habitats, oxygen production, carbon fixing, protection of watersheds and stabilization of soils against erosion and landslides and prevention of flooding. Forests provide other socio-economic benefits including recreation, scientific research and opportunities for ecotourism. Forest resources must, therefore, be managed sustainably through:

a. controlled use of the forest for sustainable yields;
b. no future conversion of prime natural forest to other forms of land use;
c. restricting development on primary watershed areas and exploring the possibility of rehabilitating degraded watersheds to ensure their productivity;
d. the control of squatting, illegal hunting, setting of forest fires and the committing of other forest offences, with the use of deterrents, e.g. stiffer fines and penalties.
e. enlistment of the cooperation of private forest land owners in pursuing conservation strategies;
f. reforestation of degraded forest land by the choice of ecologically compatible tree species; and
g. increasing capacity for fighting forest fires.

The preparation of this Policy was based on wide public consultations, and the current draft has been circulated for public comment before it is submitted for final approval. The Forestry Division has commented on it and has recommended various changes for its improvement.

## 2.10 Stated Policies of the Minister of Agriculture, Land and Marine Resources

The Minister of Agriculture, Land and Marine Resources is the Government Minister with responsibility for the forestry sector in Trinidad and Tobago. During his two-year tenure in office to date, he has made many statements and interventions of a policy nature which have influenced the development of policy within the sector.

In his contribution to the House of Representatives on the 1997 Budget debate, the Minister's statement, entitled, "The Vision for Agriculture into the 21st Century" said, "this Government considers agriculture, including forestry and fisheries, as one of the major pillars of national economic development. It was pointed out that the shared vision for the domestic agricultural sector was one of strategic importance to the overall growth and development of the economy of Trinidad and Tobago. The strategic importance of agriculture is equally important to social peace, poverty alleviation and stability because of its intrinsic link to rural communities and their development."

> "The aim of the Government is to make the agricultural sector (inclusive of forestry and fisheries) vibrant, vigorous and competitive; capable of generating profitable enterprises; able to attract investment (both foreign and local); characterized by improved domestic production and productivity, thereby providing for enhance and sustained incomes; and by extension, the reduction and consequent alleviation of poverty and contributing to the national food security effort."
>
> "The goals and objectives were to be achieved within a policy framework which emphasizes and demands that due consideration be given to the sustainability of the nation's natural resource base and ecosystem, and to ensure continuity of productive activities into perpetuity."

The Minister also emphasized the primary goal of the Government, which seeks to *"build a diversified economy maximizing our natural resource endowment and our human resource potential to the fullest."*

During 1997, the Minister personally intervened in presenting the following policies and legislation:

- a Bill for the Establishment of a National Parks and Wildlife Authority in Trinidad and Tobago (for public comment);
- a revised draft Forests Act (for comment);
- a proposed agricultural incentive programme;
- announcement that the private sawmilling sector will share in the country's teak and pine plantation resources by the allocation of 40 percent from 1998 while only 60 percent will be sold to Tanteak;
- cessation of the export of unprocessed teak logs following the expiration of the current Tanteak contract;
- opening of a "Complaints Desk" for the Forestry Division to better deal with its stakeholders; and
- policies and strategies to deal with illegal logging and logging from private lands.

These represent emerging policies which are being incorporated even as a formal forest policy review is being conducted by the Forestry Division.

## 2.11 Tobago House of Assembly Act (1996)

According to Act No. 40 of 1996 (Tobago House of Assembly Act), Section 25 (1), the Tobago House of Assembly shall, in relation of Tobago, be responsible for the formulation and implementation of policy in respect of matters set out in the fifth schedule. The fifth schedule includes (among others) Statelands, Land and Marine Parks, Forestry and the Environment.

# 3. EMERGING AND CURRENT ISSUES AND PROBLEMS

## 3.0 Introduction

The practice of forestry on the scale described in Section I has inevitably led to a number of current and emerging problems and issues affecting the sector. Some of these are due to the very nature of forestry itself, while others arise out of management policy conflicts.

Forestry, in a relatively small, tropical twin island state like Trinidad and Tobago, is constantly at the centre of conflicting policies and issues due to:

- its inherently long term nature which influences the nature and quantum of investment, expediency versus sustainability objectives, and alternative land use policies;
- its vast forest estate which leads to competing land uses, zoning of production versus protection areas; shifting focus between urban and rural areas; and single use versus multiple use activities;
- its socio -political implications when addressing poverty alleviation especially among the unemployed rural population; conflicts between public and private ownership objectives; the application of incentives versus punitive measures; gender issues; and increasing population pressure on the limited natural resource base; and
- management decisions relating to exploitation versus preservation; natural flora and fauna versus exotics; eco-centric versus people-centric objectives; and the volatile role of non-governmental organizations and other stakeholders in the decision making process.

These conflicts in policy which sometimes even occur between sections within the Forestry Division itself, result in problems and issues which need to be resolved in the national interest.

## 3.1 The Main Issues identified by TFAP (1993) and the Forestry Division (1997)

In 1993, the National Forestry Action Programme for Trinidad and Tobago identified several main issues affecting forestry and the environment in this country. These remain valid today and are reproduced in summary form below.

Each of these is then discussed in further detail, based on the views of the Director of Forestry, staff and selected sources of information.

### *3.1.1 Illegal Land Clearing - Squatting*

Squatting on forest lands is by far the most serious threat to the forests and environment in the country. In most cases, squatters clear land to grow food and afterwards construct a permanent shelter on occupied lands. The effects of clearing the land are disastrous but are not immediately visible to those who destroy the forest cover. Even if the land clearers were to understand the disastrous effects, their main concern is to feed the family and earn a living.

The farming practice employed by the squatters is not sustainable. Productivity of the land unit is soon lost through improper husbandry and then more land is cleared and the cycle is repeated. There is no doubt that squatters must be incorporated into economic programmes that would utilize the already destroyed forest base in a sustainable way.

There is a need to devise methods of management that would utilize the widest range of goods and services available from tropical forests for the economic benefit of rural populations. This is the key to protecting the forests. Experience has shown that legislation is effective only up to a point. It is only when the people, who are the potential destroyers of the forest, can be incorporated into utilizing the forest in a sustainable manner, will the incidence of squatting, slash and bum and deliberate forest fires be reduced significantly.

Solving the squatting problem by attacking the root cause will in turn solve other issues. (Source: NFAP, 1993).

This is arguably the largest social problem which impacts negatively on the State's forest. Successive governments have tried in vain to reverse the trends in squatting to little avail. There have been public land consultations, at which squatters organizations have defended the "rights" of squatters. At the other end of the scale, there have been forced evictions and court cases brought against squatters, supported by angry outcries by the public. More recently, in 1996, the present Government of Trinidad and Tobago announced plans to regularize squatters on State lands.

The problems associated with squatting in its broadest sense to the forestry sector are the eventual land use malpractice of shifting cultivation, deforestation, forest fires, marijuana plantations, illegal hunting, watershed degradation and overall destruction of the environment.

The Ministry of Agriculture, Land and Marine Resources has recently (in 1995) established a Land Administration Division (LAD) to deal specifically with such matters. The Forestry Division continues to monitor and report on incidences of squatting to the LAD and Lands and Surveys Division of the Ministry for appropriate action.

It is anticipated that only when national policies regarding squatting are announced and implemented, then problems specific to the forestry sector might be addressed.

Land use problems also need to be addressed on a national scale, including the issues of zoning, land tenure, designation of "environmentally sensitive areas" and integrated land use planning.

### 3.1.2 Recreation

Recreation opportunities utilizing forests are limited despite the occurrence of unique areas within the country. There is a pressing need to develop a system of parks and other areas for recreational activities. The development of this major resource would be self-sufficient, create jobs and attract visitors. The country has a wealth of animal and plant life to attract visitors. A programme to develop and market this unique product would ensure the protection of these park areas, as well as creating employment for local communities. (Source: NFAP, 1993)

Since 1980, the Forestry Division has had a draft Policy and System of National Parks and Other Protected Areas, but to date, there has been no enabling legislation to control the management of such areas to include fees, penalties and give legal status to some of the 61 areas which have been proposed.

While some of these Forestry Division park projects have received funding from international lending agencies, a proposed autonomous National Park Authority is likely to be created to focus on park administration and boost the ecotourism thrust nationally.

A new national park legislation is due before the end of 1997. The challenges would be to implement a fee structure for visitors to park areas which was hitherto free, as well as to create a management system for managing the new parks autonomously.

### 3.1.3 Forest Management

There is a need to formulate management plans for the entire forest estate. Plans that were developed in the early days are not in line with current thinking in the field and, therefore, these must be revised. In order to undertake this, there must be a comprehensive survey of the resources to determine the availability of the various potential forest products. (Source: NFAP, 1993)

Much of the input into the National Forestry Action Programme (NFAP) was based on data from the 1978-80 national forest inventory, which are quite outdated. A new inventory is currently being proposed, utilizing current technologies in GIS and GPS. This would enable the preparation of relevant integrated management plans and greater control of the natural renewable resources of the country for sustained use.

The Forestry Division would then be in a better position to identify, quantify and manage its resource base for production and protection, watersheds, wildlife, parks and research. Private forest and private lands which affect the environment could also be addressed for their productive and protective roles.

Industry analyses would have to be conducted to forecast timber demand from the lumber manufacturing, building and furniture sectors in traditional and new areas, such as match production, etc., and management plans prepared accordingly.

Policies concerning second rotation of teak and pine plantations should be addressed for their economic and environmental effects.

### 3.1.4 Legislation

If the Forestry Division is to administer the State's forest effectively, adequate authority must be vested in the Division to enable it to discharge the functions with which it has been mandated.

This aspect is being addressed through planned legislation. (Source: NFAP, 1993).

Most of the existing forestry legislation in Trinidad and Tobago is old and outdated. In 1997, the Forest Act was revised and issued for comment by a limited public. It is still to be approved. This contains new legislation requiring the preparation of a 10-year National Forest Resource Conservation Plan and the establishment of a Forestry Fund for use on approved forestry projects.

A joint National Parks and Wildlife Bill was prepared and circulated for public comment in the first half of 1997, but was withdrawn after severe criticism. Separate legislation is currently being drafted for each sub-sector, with the appropriate changes which were recommended.

While the other acts remain in their original state, the 1995 Environmental Management Act promises to deal more seriously with offenders, being characterized by a number of stiff penalties which would be applied in forestry situations as an alternative to traditional legislation.

The Forestry Handbook, a procedural manual for forest officers, was revised in 1997 and reissued to staff. There is need for closer coordination between forestry and environmental legislation to ensure consistency between the Forestry Division and the Environmental Management Authority.

### *3.1.5 Forest Industries*

Forest industries play a pivotal role in the effective utilization of raw materials produced from the forest. Teak and pine together with wood from natural forests are worth some TT$4.1 billion and have the potential to stimulate a great deal of employment. What is needed is an analysis of the entire system from logging to sawmilling, to processing and utilization to determining methods of deriving maximum use of the resource. (Source: NFAP, 1993).

In 1997, as in the 1970s, there exist 65 licensed private sawmills and one state-owned mill (Trinidad and Tobago Forest Products Company Limited, also known as Tanteak). These derive their raw material input from state and private lands. Since 1988, Tanteak has had a monopoly on the State's teak (Tectona grandis) and pine (Pinus caribaea) plantations which currently stand at approximately 9,000 ha and 4,000 ha respectively. The private sawmills compete for remnants of teak and pine left by Tanteak, in addition to timber sold from state and private lands.

In 1994, the FAO conducted a study by the timber industry in Trinidad and Tobago, and recommended that Tanteak be demonopolized. At present, Tanteak pays a guaranteed royalty rate for its teak and pine supply while private sawmillers make higher competitive bids for the fields which are offered to them.

Since early 1997, there has been ongoing discussions held between the Minister of Agriculture, Land and Marine Resources, the Director of Forestry and the Sawmillers Cooperative Society (SCS) association representing the private sawmillers with the aim of arriving at a policy and satisfactory agreements regarding annual quotas of teak and pine for the membership, equitable distribution of the resource allocated, and royalty rate control.

It was only in October 1997 that the Minister of Agriculture, Land and Marine Resources announced a new policy, which states that from 1998, the SCS would receive 40 percent of the annual teak and pine volume made available annually, with Tanteak receiving the other 60 percent. Most significantly, the Sawmillers Cooperative Society has offered voluntarily to pay a surcharge representing a percentage of their teak and pine royalty to the Forestry Division to conduct additional reafforestation annually, which is a major innovation in private sector involvement in state forestry.

This is a most welcome policy direction which represents a collaborative effort between the State and private enterprise aimed at attaining sustainability within the forestry sector.

There are other areas, however, where the absence of clear policy has created concerns. These are:

a. Tanteak's continuing export of unprocessed teak logs to India and Britain;
b. the high degree of industrial activity in unlicensed furniture factories, with no accountability to the State;
c. the increase in the number of unlicensed portable sawmills operating in state forests;
d. the unregulated non-wood forest products industry;
e. the uncontrolled felling and logging on private lands to the detriment of the national environment; and
f. the importation of round logs without sufficient control.

Each of the above needs to be addressed as a policy issue, preferably through a joint consultative process between the Forestry Division and the respective stakeholders. Forestry decisions makers should note the policies of the International Tropical Timber Organization in its Year 2000 Objective to ensure that all tropical timber entering international trade from the year 2000 comes from sustainable managed sources, as well as the terms and conditions of the International Tropical Timber Agreement (1994) which has been ratified by most tropical timber producing and consuming countries with the exception of Trinidad and Tobago.

Such international conventions and agreements will ultimately shape the direction of policy if this country is to remain competitive and maintain an open market policy.

### 3.1.6 Protection Forests

In situ conservation of the range of biologically diverse life forms for yet to be discovered uses, can only be achieved by leaving representatives of the forest types undisturbed. While this may be addressed to an extent in the system of national parks, it is sufficiently important that separate provisions be made to ensure the continued existence of representative samples for this and future generations. (Source: NFAP, 1993)

During the last decade there has been much greater significance attached to protection forestry in Trinidad and Tobago for the benefit of flora, fauna, watersheds, and other special features of the environment. Areas which were once dominated by timber production activities have been designated as parks, prohibited areas, wildlife sanctuaries and water catchment areas. The Environmental Management Authority also proposes the designation of "Environmentally Sensitive Areas" for protection purposes.

As public awareness of the environment increased, there have been equivalent demands for biodiversity conservation and protection of unique ecosystems. The Forestry Division has responded positively through whatever legal channel became available in the absence of specific legislation (e.g. "Prohibited Areas" have been declared under the Forest Act).

Even within watersheds, the Forestry Division utilizes a slope/land use classification recommended in an FAO project in 1986. While it is not legally binding, it is useful as a guide for good land use (see table 9):

***Table 9: Slope Categories and Recommended Land Uses***

| *Slope* | *Recommended Land Use* |
|---|---|
| >40° | Watershed protection forests |
| 30 - 40° | Production forests |
| 20 - 30° | Agroforestry/Pastures |
| 0 - 20° | Annual agriculture |
| 10 - 20° | Intensive conservation measures |
| 5 - 10° | Moderate conservation measures |
| 0 - 5° | Does not need conservation measures |

The proposed National Parks legislation and the National Park Authority would be the principal means for legally and administratively affording protection to the natural renewable resource base of Trinidad and Tobago in a coordinated framework.

Managing forests as watershed units would also provide a greater degree of protection to flora, fauna and the general environment than the current practice of having arbitrary conservancy boundaries.

### 3.1.7 Role of Forestry and the Environment

There is an urgent need to place forestry and the environment at a much higher level on the national agenda. Too often action is taken when it is too late and when it is virtually impossible to reverse the

effects of environmental degradation. Trinidad and Tobago is at a crucial stage where action is needed now if the detrimental results of further environmental destruction are to be averted. The cost of these actions which must be taken actually represent a saving since it would require a great deal more to deal with the problems when they are at a more advanced stage. (Source: NFAP, 1993).

The linkage between forestry and the environment need to be highlighted to politicians, policy makers and the general public for a greater understanding and appreciation of the role of forests in maintaining a total quality environment.

The role of the forest in hurricane disaster mitigation has to be recognized through the adoption of stronger policy measures and greater public participation to reverse deforestation.

There is need for more formal and widespread environmental education programmes, building on a vast reserve in the Forestry Division's libraries, greater public participation through community based organizations in reafforestation, soil and water conservation, forest fire protection, beautification programmes and the like.

The State must recognize its limitations in being able to do it alone, and conduct additional extension and outreach programmes in forest conservation for social, economic and environmental benefits.

Integrated Environmental and Economic Accounting (IEEA) systems should be established. Better ways should be developed for measuring the value of natural resources and other services provided by forestry and the environment. National accounts should be expanded to accommodate IEEA as a complement to traditional national accounting practices.

Environment costs should be incorporated in the decisions of producers and consumers in order to reverse the tendency to treat the forest as a "free good" and to pass these costs on to other parts of society, other countries or to future generations.

## 3.2 Issues And Problems External To The Forestry Sector

The following is a short list of issues and problems which lie outside the forestry domain; but with direct or potential effects on it:

- funding to conduct forestry programmes and NFAP projects;
- cessation of scholarships for the training of professional staff;
- Cabinet's decision to withdraw Trinidad and Tobago's membership in the ITTO;
- perils of the forest caused by drug dealers, trap gun hunters and other deviant elements;
- leniency of the judicial system when dealing with forestry offenders; and
- insufficient regional cooperation in forestry matters.

# 4. PROCESSES AND MECHANISMS OF POLICY FORMULATION

## 4.0 Introduction

Forest policy in Trinidad and Tobago has developed in quantum leaps. In the early part of the century there was no formal policy in existence, and then little change was made until the 1942 Forest Policy came into being. Following that, the revised Forest Resources Policy (1981) was prepared by the Forest Division. However, this has not yet been approved and has no legal status.

In spite of these weaknesses, Trinidad and Tobago has been at the forefront of forestry development and management in the Caribbean region, reflecting the existence of "informal" policy to guide the decision-making process. This is truly significant in the light of the diversity of interest and complexity of forestry in this country.

In this Section, an attempt will be made to analyze the policy formation processes of the past using Forestry Division's Annual Reports and other historical documents as sources of information. These are compared with the present system of policy review, evaluation and reformulation which is currently taking place within the Forestry Division.

## 4.1 Policy Formulation in the Past

The earliest records of New World forest policy in Trinidad and Tobago dates back to 1765 when the Main Ridge of Tobago was declared a Forest Reserve by the Young Commission for "the protection of the rains".

After over a century, in 1891, the Superintendent of the Royal Botanic Gardens in Trinidad advised that there existed good reasons for adopting a permanent scheme of Forest Conservation for the benefit of the Island of Trinidad.

In 1899, Mr. F. Lodge of the Indian Forest Service visited and submitted a report on Forest Conservation in Trinidad and Tobago.

In 1901, the first Forest Officer, Mr. C.S. Rogers was appointed to a one-man Forestry Branch of the Crown Lands Department.

Between 1922 and 1956 when internal self-government began, 33 forest reserves spanning 111,832 ha. or 32.2 percent of Trinidad were legally declared, the majority for the control of timber and provision of water. This concentrated effort in a 35 year period reflected the policies and objectives of the British administrators at the time.

Trinidad and Tobago was also a key territory for applied research where by several expatriate experts choose these islands for their work and interests. These include:

- introduction of the Birds of Paradise in Little Tobago in 1909;
- first introduction of Teak (Tectona grandis) in the Western Hemisphere in 1913;
- establishment of the Tropical Shelterwood System at Arena in 1932;
- earliest introduction of Caribbean Pine (Pinus caribaea) in 1946.

The 1942 Forest Policy was enunciated after forest reservation began in Trinidad and Tobago and three major pieces of legislation, viz, the Forest Ordinance (1916); the Crown Lands Forest Produce Rules (1919, 1936) and the Wild Animals and Birds (Protection) Ordinance (1933) came into effect. It addressed several important areas, these being forest reservation, forest management, utilization, research, education, private forestry and land usage (See appendix I).

The Forest Resources Policy (1981) was formulated on the basis of a sector-driven need to update its predecessor as a result of significant changes in the environment. The process was handled almost entirely within the Forestry Division through a Policy Committee which utilized as its inputs, (a) the 1942 Forest Policy; (b) forest policies of other countries; and (c) features of the changing environment between 1942 and 1981.

Issues were defined on the basis of the collective view of the professional staff of the Forestry Division, with little or no formal consultation with stakeholders or the general public. The Forestry Division virtually set its own priorities and formulated policies in its own interest.

The draft policies which were prepared were then referred to other regional and international forestry experts for review, following which the Forest Resources Policy (1981) was finalized and submitted for Ministerial approval.

## 4.2 Current Forest Policy Review

In 1997, the new Director of Forestry, who took office in July, announced the need for a review of the Forest Resources Policy (1981). It was decided that the review should be as broad-based as possible to include all of the interests of the forestry sector in Trinidad and Tobago, with the Director of Forestry himself taking responsibility for its progress.

The proposed plan of action recognizes that forest policy formulation world-wide has undergone significant changes in its approach over the last decade, with increased participation of stakeholders.

As a result of this approach, new policy directions have been emerging with inputs from several other sources largely external to the Forestry Division. These include:

a. new political directorate;
b. global macro-economic policy changes;
c. international conventions and agreements;
d. non-governmental organization (NGO) and private sector inputs;
e. stakeholder views;
f. sustainable management principles;
g. environmental safety and health; and
h. specific sector inputs.

The net result of these emerging changes to Forest Policy has been an increase in direct and indirect benefits to the stakeholders and general public, greater people participation in the decision-making process, increased recognition and respect for Trinidad and Tobago in the international forestry arena, a more holistic approach to forest and environmental management, reduced unemployment, an overall increase in the understanding of the role of the forestry sector and improvement in the quality of life.

The Forestry Division of Trinidad and Tobago proposes to conduct its forest policy review in the following manner:

a. acknowledge the Government's stated policies on forestry, the environment and other related topics;
b. recognize existing international conventions and agreements;
c. identify and analyze key issues and problems relating to the forestry sector;
d. consider possible outcomes;
e. define sector objectives and priorities;
f. develop strategies for meeting objectives;
g. create, manage and maintain systems for policy implementation, monitoring and control;
h. evaluate and review through approved methodologies; and
i. make policy changes as required.

The process is intended to be a bottom-up approach, with the widest possible consultation with stakeholder and other specialized public in all the phases.

It is expected that this consultancy report would represent a significant input to the process and the first draft of the new policy would be completed by April 1998.

Following the adoption of a new national Forest Resource Conservation Policy, and within one year of coming into force of the revised Forests Act, the Forestry Division will prepare a 10 year National Forest Resource Conservation Plan which shall contain a statement of the policy for the forest industry, the measures required to conserve and develop the water, soil and forest resources in accordance with the policy, and such other information as may be relevant.

# 5. TRINIDAD AND TOBAGO FORESTRY POTENTIALITIES

## 5.0 Introduction

The Government of Trinidad and Tobago continues to advocate diversification of the national economy to reduce dependence upon oil and natural gas.

The forestry sector is poised to play a significant social and economic role to make a greater contribution to the country's GDP, as well as to assist in poverty alleviation for the rural population.

The overall contribution to GDP for the agriculture, forestry and fisheries sectors has averaged about 2 percent over the past three years. While this figure has been based upon tangible sale of wood and wood products, teak seeds, licences and other royalties, forestry's input into the national economy has not been quantified for its role in water production, ecotourism and environmental conservation. These will be discussed below as tangible and intangible benefits of the forest.

## 5.1 Tangible Benefits of Forests

### *5.1.1 Timber Production*

#### 5.1.1.1 The Natural Forest

Out of the total land area of 512,835 ha, approximately 218,452 ha (42.6 percent) is forested.

Natural forest production areas are managed under the periodic block system for multiple use and sustained yield, in addition to increasing areas of enrichment plantations of cedar (*Cedrela odorata*), mahogany (*Swietenia macrophylla*), cypre (*Cordia alliodora*) and other valuable species, on both state and private lands.

The output from the natural forest has declined significantly from the 1970s from a maximum of 85,000 $m^3$ in 1975-80 to a minimum of 26,000 $m^3$ in 1989-94.

This is as a result of the Forestry Division's enforced policies on forest conservation whereby timber sale is now prohibited on areas exceeding 40 percent in slope and areas proposed to be parks.

Even where production areas were managed, greater emphasis is now being placed on the sustainability of the forest through the application of appropriate practices, such as silvicultural marking, maintaining riparian cover, wildlife feed trees, and other such conservation measures.

It is estimated that the total volume of all timber species in the national forest is approximately 21.3 Mn $m^3$. The exploitable volume is estimated to be 9.9 Mn $m^3$ or 46 percent of the total standing volume. The National Forestry Action Programme reports on Forest Economics projected that with proper management, the natural forest estate could realize a harvest of 165,000 $m^3$ per annum on 100,000 ha of intensively managed forests. It also forecasted a further 30,000 $m^3$ of sustainable supply from privately owned forest, with the application of incentives and low-cost extension services.

Forestry's contribution to GDP could increase significantly if natural forest production areas are more intensively managed, if royalty rates are revised, if the timber sale system is upgraded and if more efficient timber harvesting and waste recovery systems are employed.

Local hardwood timber is processed at 65 privately owned sawmills, most of which are over 25 years old and are very inefficient in their operations. The challenge would, therefore, be for private sawmills to upgrade their equipment, train their staff and adopt more efficient production systems to enable their products to meet the standards required for domestic consumption or for export.

During periods of scarcity, some sawmillers have been importing logs from the region to supplement their shortfalls. This practice seems likely to continue once the required phytosanitary conditions are met.

Although hardwoods are scarce, there is much wastage in the forest and at the sawmill, which should be avoided. Potential exists for downstream processing in charcoal production, chipboard manufacturing and craft cottage industries which would simultaneously generate employment as they utilize the available raw material.

Many extractives from forest species are currently in high demand for the manufacture of pharmaceuticals, industrial chemicals, insecticides and the like. These need to be explored actively as economic enterprises. The need for import substitution, through a combination of alternative local raw materials supply and technology transfer, must also be addressed.

#### 5.1.1.2 Plantation Forests

Since 1979, a Concession Agreement between the Forestry Division and the Government-owned Trinidad and Tobago Forest Products Company Limited (Tanteak) granted this company the exclusive rights to harvest all of the country's valuable teak and pine resources in the form of thinnings and final crop at the normal royalty rate.

During the period 1988-1997, Tanteak exercised its monopoly by selectively harvesting fields scheduled for thinning or final felling, thereby creating a backlog of unworked fields; sold unprocessed logs to private sawmillers; and virtually monopolized the market while the majority of private sawmillers experience shortfalls in timber supply.

In addition, Tanteak has been exporting teak logs to India and Japan for the past ten years which is disadvantageous to the local economy in terms of the loss of value added revenue. This contractual arrangement is likely to last another two years.

The royalty which is paid for teak is $44.38 TT ($7.06 US) per cubic metre and that for pine is $30.50 TT ($4.85 US). By contrast, the open market value for teak is $630.00 TT ($100.00 US) and $150.00 TT ($23.80US) for pine which is the amount paid by local sawmillers for raw material Tanteak leaves behind or for fields the Company does not purchase. If these open market rates are paid by all purchasers for the country's plantation thinnings and final crop, the economic cost of managing such plantations would be realized and the revenue earned by the Forestry Division would give a more realistic reflection of its true economic value.

Significantly, during the period of this forest policy review exercise, the Ministry of Agriculture, Land and Marine Resources announced a major policy change whereby the private sawmillers would receive a quota of the country's teak and pine logs in the form of 40 percent of the annual allowable cut, while Tanteak would now receive 60 percent. Although the royalty rates have remained unchanged, this move will serve to stimulate the economy through the generation of greater employment and activity of downstream industries, such as furniture factories and handicraft making for local and export markets.

The challenges for the Forestry Division in the management of the production plantation forests in Trinidad and Tobago lies in shortening the rotation, increasing their yield, establishing second generation plantations economically and efficiently, as well as reducing the wastage (especially of teak) through the stimulation of craft and other non-traditional industries.

#### 5.1.1.3 Private Forests

The 10 percent of Trinidad and Tobago which is under private forests continues to receive attention from forestry planners and environmentalists. The reasons are that while a few private forest owners continue to invest in their forest estate, the majority have been cutting and selling their trees without replacing them. This has resulted in a decrease in their land value; loss of productivity on their lands and an increase in environmental degradation.

The Ministry of Agriculture, Land and Marine Resources has only recently announced a package of incentives for private forest land owners with concessions for the following:

- a rebate of 25 percent of establishment cost per hectare for reafforestation programmes including agroforestry to a maximum of $2,500/ha;
- increase in the existing rates for soil conservation by 100 percent;
- maintenance of 50 percent subsidy rate on all agricultural machinery and equipment;
- increased subsidy on wheel tractors.

For the reafforestation incentive, it is assumed that approximately 500 ha of land could be reafforested each year at an estimated cost of $10,000/ha. Total cost will, therefore, be $5 million, of which the 25 percent subsidy would be $1.25 million. This is meant to stimulate private forestry once again for its productive and protective roles.

The Minister of Agriculture, Land and Marine Resources has further announced that legislation will soon be enacted to control the cutting of trees on private lands.

The revised Forests Act requires that all logs being transported from private lands on a public road must have a removal permit. This should have the desired effect of reducing theft of trees and illegal logging on private lands.

All these measures are expected to encourage renewed activity in private forestry for economic and environmental values.

### *5.1.2 Ecotourism*

Trinidad and Tobago abound in physiographic and biological diversity, far in excess of any of the other Caribbean territories. Trinidad is endowed with three mountain ranges, forest, swamps, marshes, rivers, mud volcanoes, a pitch lake and beaches. Tobago is renown for its reefs and pristine beaches, waterfalls and historical sites.

In relation to its size, Trinidad and Tobago is one of the more biologically diverse countries in the Western Hemisphere and reflects the transition from the South American landmass to an Antillean flora and fauna. There are over 100 mammalian species, almost 50 percent of which are bats; 420 species of birds, of which approximately 160 are migratory species which visit annually to feed during North American and South American winters; 70 species of reptiles; 76 species of freshwater and euryhaline fishes; and 26 species of amphibians. The number of insect species is not known, but at least 617 species of butterflies have been identified.

In respect of the flora, there are 280 species of ferns; over 2,200 species of native flowering plants, which include 200 species of orchids, 58 of bromeliads and 34 of aroids. Over 110 of these flowering plants are endemic to the islands. In addition, 800 species of flowering plants have been introduced to the islands. There is limited information on lower plants and new species of insects and plants are being discovered each year.

In terms of its marine biodiversity, Trinidad and Tobago, being in the Caribbean Sea, shares along with the other Caribbean islands, a healthy repository for some of the most productive and biologically complex ecosystems in the world.

There are at least 300 marine fish species, numerous species of crabs, shrimp and lobsters, and up to 200 species of molluscs. Five types of sea turtles nest on the north and east coast beaches of Trinidad, while the leatherback, green and hawksbill turtles also nest on Tobago.

In 1980, a Policy for the establishment and development of a National Park System in Trinidad and Tobago, as well as a Systems Plan for National Parks and other Protected Areas, were prepared. These received only limited legal and administrative approval from the authorities and the Forestry Division and Tobago House of Assembly continued to manage the natural renewable resources of the country without enabling National Park legislation.

It has only been in the last two years that draft National Park legislation has been prepared and circulated for public comment.

The Tourism Master Plan for Trinidad and Tobago acknowledges that ecotourism has been the most rapidly growing sector in the tourism industry world-wide. The Government of Trinidad and Tobago has announced its policy of strengthening the institutional capacity for developing, managing and monitoring the tourism industry and has identified the development of tourism in Tobago as a major priority. Its objective is to make Trinidad and Tobago the foremost tourism destination in the Caribbean.

Until such time as the proposed National Park Authority is formed, responsibility for the management of 61 proposed national parks and other protected areas falls under the Forestry Division and the Tobago House of Assembly.

The ecotourism potential is estimated to be a billion dollar industry which depends on the management and protection of the natural renewable resources of the country today for their use and enjoyment by future generations. The potential for investment is virtually unlimited as the private sector is now being invited to play a larger role in promoting and managing the tourism industry.

### *5.1.3 Water*

One of the tangible products of forestry management is the production of water through the hydrologic cycle. While there is no specific watershed protection legislation, the Forestry Division in Trinidad has traditionally managed sections of its forest estate primarily for watershed production to the exclusion of other operations, such as timber harvesting or plantation forestry. The opportunity cost of doing so is high.

Water is impounded in surface reservoirs, pumped from streams or from underground storage areas and distributed commercially for residential, industrial or agricultural use by the Water and Sewerage Authority (WASA).

No royalty or any other form of revenue is derived from this arrangement.

The demand for water continues to rise annually with increasing population, tourism and greater needs by the rapidly expanding industrial sector.

The role of the forestry sector in producing water for use by all other sectors needs to be recognized and consideration be given to the payment of some form of royalty to the Forestry Division to manage and protect watersheds from forest fires, squatting, deforestation, quarrying and other such threats, in order to guarantee a constant and adequate supply. Alternatively, the Forestry Division should be paid to reforest critical watersheds where forest plantations are needed for conservation purposes.

## 5.2 Intangible Benefits of Forests

Environmental conservation is intimately linked with good forest management. Forests conserve flora, fauna, soil, water, biodiversity; reduce air, land and water pollution; reduce flooding; maintain stable

climates; beautify our environment; mitigate the effects of hurricanes, and serve as a sink for greenhouse gases.

Although these roles of the forest are widely recognized, it is virtually impossible to quantify them in economic terms, hence the vulnerability of forest land for "development" and subsequent change of land use continues unabated.

Policy-makers and top decision-makers need to strive for ecological balance and recognize the carrying capacity of any environment as part of the planning process.

In this regard, forestry training and environmental education need to be structured to meet the challenges of the 21st century where conflict resolution in natural resource management, environmental impact assessments and carrying capacity analyses will be brought into focus.

In this type of situation, it is suggested that a regional approach to training and the development of management guidelines appropriate to small island states, be pursued.

# 6. INSTITUTIONAL ARRANGEMENTS

## 6.0 Introduction

The Forestry Division is located within the Ministry of Agriculture, Land and Marine Resources (MALMR). The organizational structure of the Ministry has been in effect since 1992 and is based on the need to establish mechanisms for more effective decision making, communication and implementation at central and field levels, leading towards better delivery of goods and services.

The Ministry's staff consists of some 1,500 monthly-paid public servants and about 3,500 daily rated workers. The Forestry Division's complement of staff is approximately 334 and 581 respectively.

A listing of the monthly paid staff in the Forestry Division is attached as Appendix III.

All of the staffing and operations are financed either by the Central Government or by lending institutions. The annual operational budget of the Forestry Division for 1997 is approximately $45,600,000TT ($7,238,000US). This includes salaries, wages, development and recurrent budgets.

## 6.1 Forest Organization

The Director of Forestry is the Divisional Head and is the Chief Adviser to the Honourable Minister of Agriculture on all forestry and wildlife matters. However, the Minister exercises ultimate control of all operations through the Permanent Secretary who is the Administrative Head of the Ministry. The Director of Forestry is also Chief Game Warden under the Conservation of Wildlife Act. The Director is assisted by a Deputy Conservator of Forests.

For administrative convenience, Trinidad is divided into six territorial divisions referred to as Forest Conservancies, with forestry in Tobago being under the Secretary for Agriculture in the Tobago House of Assembly. Within the Division there are five sections. They are Research, Utilization, Wildlife, National Parks, and Forest Resources, Inventory and Management (FRIM).

The Forestry Training School is under the management of the Eastern Caribbean Institute of Agriculture and Forestry (ECIAF). This institution is overviewed by a Board of Management of which the Director of Forestry is a member.

An Assistant Conservator of Forests (University graduate) is placed in charge of each conservancy except when a vacancy in the grade makes it necessary for a Forester III to be placed in charge. Each

conservancy is comprised of several ranges. Each range is placed in the charge of one Forester I who is normally assisted by one or more Forest Rangers.

An Organizational chart for the Forestry Division is attached as Appendix IV.

## 6.2 System of Operation

The key people, groups and institutions who impact upon, and are affected by, the Ministry include:

**Parliament:** comprising both the House of Representatives and the Senate, which determines the Ministry's annual budgetary allocation, enacts the enabling legislation which governs certain prescribed areas of activities, and poses questions to be answered relating to performance under areas of the Ministry's portfolio assignment.

**Cabinet:** which decides on policies, programmes and projects and the priorities related thereto for implementation by the Ministry, and which, in turn, is advised by the Ministry on matters related to its portfolio.

**Producers:** constituting the mix of hunters, loggers, sawmillers, handicraft and furniture makers, foresters engaged in the cultivation, production, harvesting and sale of the product of the natural resource base. They look to the Ministry for direction, facilitation and promotion by way of policies, programmes, projects, technical assistance and institutional and infrastructural support. Their concerns are often articulated through organizations and groups, both formal and informal. The Ministry interacts with these - its major clients - in order to assess needs and better shape, develop and implement intervention strategies.

**Public Sector Institutions/Organizations:** the Ministry's operations and functions are circumscribed by centrally determined and administered arrangements for major aspects of human resource and financial management. Significant interface exists between the Forestry Division and the Ministries of Planning and Development, Trade Industry and Tourism, Foreign Affairs, Works and Transport, Health, National Security and Local Government in policy and programme formulation and execution.

Of significance, a Policy and Programme Advisory Board (PPAB), comprising the technical and administrative directorate, has been established to advise the Minister of Agriculture, Land and Marine Resources on all matters relating to policy, programmes and budgets.

**Affiliate Organizations:** the Director of Forestry or members of his staff chair or belong to a number of committees and organizations, some of which are listed below. The level of involvement is to ensure adherence to policy objectives and parameters established for performance.

i. Trinidad and Tobago Forest Products Company Limited (Tanteak) is a state owned enterprise which is responsible for marketing of teak and Caribbean pine.
ii. The Environmental Management Authority (EMA) was established in 1995 to formulate environmental policy and coordinate the activities of various agencies. It operates under the Environmental Management Act, and liaises closely with the Forestry Division on terrestrial natural resource management issues. The Forestry Division has a representative who serves as the Ministry's Environmental Officer to strengthen the linkage between the two organizations.
iii. The National Forest Fire Plan Committee is a multidisciplinary committee chaired by the Director of Forestry to address forest fire prevention and control during the dry season. It comprises representatives of NEMA, the Fire Service, Police Service, Defence Force, Meteorological Office, Agricultural Society, Civilian Conservation Corps and non-governmental organizations.
iv. The Wildlife Conservation Committee is multi-sectoral and advises the Minister on wildlife policy matters. It is chaired by the Director of Forestry and addresses legislation, hunting issues, wildlife farming, protection and research.
v. The National Wetlands Committee was established in 1995 to address policy and management of wetland areas in Trinidad and Tobago. This country is a signatory to the Ramsar Convention

and the Nariva Swamp has been internationally recognized as one of the prime wetland areas deserving of protection. The committee is also chaired by the Director of Forestry.

vi. The Asa Wright Nature Centre is a privately run organization which focuses on biodiversity and ecotourism. It is renowned for its wildlife and natural resources. The Director of Forestry is a member of the Board.

vii. The Sawmillers Cooperation Society is an association representing private sawmillers in Trinidad and Tobago. Its executive meets regularly with the Director of Forestry and staff to discuss and resolve problems and issues affecting the sawmilling sector.

viii. The Nariva Mayaro Woodworkers Cooperative Society is a group of some 70 woodworkers who operate in the South East Conservancy where the periodic block system is used to manage the natural forest sustainably. This is an example of social forestry being practised in a rural area where there is much direct dependence on forestry for employment and other benefits.

ix. The National Parks and Watershed Management Project Committee comprises Forestry Division and Ministry of Agriculture, Land and Marine Resource representatives who meet with World Bank consultants currently involved in a project in Trinidad and Tobago. This is a follow-up to NFAP and proposes to address planning, legislation and management of national parks and watersheds on a priority basis.

x. The NEMA Task Force is multidisciplinary and includes Forestry Division representatives who deal with forest fires, disaster planning and relief issues. Disaster staff conduct formal and community training on various aspects of disaster management.

xi. The National Hurricane Disaster Task Force is multidisciplinary and is chaired by an officer of the Forestry Division. It aims to prepare disaster preparedness and impact mitigation plans for the agriculture, forestry and fisheries sectors. It oversees a 16 month project under the aegis of the FAO and CDERA.

xii. The Technical Working Committee of the Civilian Conservation Corps prepares projects for 7,200 young persons between 18-25 years old annually in environmental areas in three 12 week cycles. The majority of projects are forestry-based under the guidance of forestry professionals on the Technical Working Committee.

**Regional/International Organizations:** the Government, represented by the Ministry, has membership in, and/or interacts with, a number of regional and international organizations which influence the development of agriculture, forestry and fisheries. Of major interest are the Food and Agriculture Organization (FAO), Inter-American Institute for Cooperation on Agriculture (IICA), Caribbean Research and Development Institute (CARDI), the International Union of Forest Research Organization (IUFRO), CARICOM, PAHO/WHO, and UWI. The Ministry assists in determining the policies and programmes of some of these organizations and, in turn, is assisted by the technical and financial support which they provide.

Trinidad and Tobago's membership in the International Tropical Timber Organization (ITTO) was recently cancelled, but efforts are currently being made to have it reinstated.

**General Public:** Forestry and its contribution to national development is of fundamental concern to the Ministry. In this regard, policies and programmes influence the well being of the general public who depend on information, education, guidance and technical support. We in turn access the general public for feedback on the impact and appropriateness of policy and programme interventions.

## 6.3 Institutional Functions of The Forestry Division

The various functions of the Forestry Division are performed through annual programmes of work. Those annual programmes are designed within three-year rolling operational plans that are formulated within the broad policy framework of the Division.

The programmes are executed by the various conservancies and sections within the Forestry Division in Trinidad.

The following are the main programme areas of the Forestry Division:

a. Natural Forest Management - for production and protection purposes, e.g., sale of timber and other forest products, watershed protection, agroforestry, inventory and planning.
b. Plantation Programme - establishment, maintenance and harvesting of teak, pine and mixed hardwoods plantations.
c. Parks and Recreation Areas Management - establishment and maintenance of parks and recreation areas.
d. Wildlife Management - regulation of hunting, protection and management of wildlife sanctuaries.
e. Research - in silviculture, watershed management, wildlife, and natural forests
f. Law Enforcement - enforcement of laws relating, to forestry, sawmilling, wildlife and forest fires.
g. Engineering - construction and maintenance of roads, bridges, buildings and designing harvesting techniques.

## 6.4 Organizational Structure

The organizational structure of the Forestry Division in Trinidad to conduct the annual programmes of work is shown at Appendix IV. There exists an overall human resource shortage in the professional, technical and administrative classes.

A human resource needs analysis which was done in 1997 identifies the following staff needs of the Division in Trinidad:

| *Post* | *No. Required* | *Role* |
|---|---|---|
| Assistant Conservator of Forests | 6 | Professional forest management. |
| Planning Officer | 2 | Prepare management plans. |
| Information Officer | 1 | Package and disseminate forestry Information. |
| Forester I | 20 | Practise technical forestry. |
| Computer Programmer | 1 | Design and apply computer technology. |
| Administrative Assistant | 1 | Devolve administrative responsibility. |

## 6.5 Perception Of The Organization Performance

The directorate of the Forestry Division disburses funds for its annual programmes of work and monitors progress and achievements on a constant basis.

Feedback on the effectiveness of the Division's policies and programmes is provided through periodic meetings with stakeholder groups representing various interests, other governmental agencies dependent upon forestry (e.g. WASA for water), and through dialogue with the general public.

The staff structure is modified occasionally to meet the changing needs and emphases of the Division.

# 7. POLICY STUDIES

Any public policy is usually perceived as comprising a series of patterns of related decisions to which many circumstances and personal, group, and organizational influences have contributed. The policy-making process involves many steps which may extend over a long time. The aims or purpose underlying a policy are usually identifiable at a relatively early stage in the process but these may change over time, and sometimes, may be defined only retrospectively.

The outcomes of policies require study, and where appropriate, be compared and contrasted with the policy-makers intentions. Accidental or deliberate inaction may contribute to a policy outcome.

The study policy requires an understanding of behaviour, especially behaviour involving interaction within and among organizational memberships.

For a policy to be regarded as a "public policy" it must, to some degree, have been generated, or at least processed, within the framework of governmental procedures, influence and organizations. 'Policy studies' may be divided into a number of steps:

- studies of policy content;
- studies of policy process;
- studies of policy outputs;
- evaluation studies;
- information for policy making;
- process advocacy;
- policy advocacy; and
- policy analysis.

Public policy, therefore, must be considered to be much more than simply governmental outputs. Policy studies lead to knowledge of policy and the policy process. Policy analysis leads to knowledge in the policy process.

In Trinidad and Tobago, policy studies are not entirely within the domain of the public service, but are influenced by:

- political changes in Government, and such changes have occurred in 1986, 1991 and 1995. Each new government would have developed and implemented policies, some of which ended with their term of office;
- public service reform policies which have reoriented agencies, like the Forestry Division, from being a primary producer of goods and services to being a facilitator for stakeholders and the general public; and
- forestry sector influences arising from changes within the organization and from the external environment.

In recent years, policy studies have been conducted by the Government of Trinidad and Tobago in the following areas related to forestry:

- food and agriculture policy,
- land use policy,
- national wetlands policy, and
- national environmental policy.

In each of these studies a base document was prepared, public consultation was conducted and views incorporated into the final product.

Some organizations conducted their entire studies utilizing resident staff while others contracted out their assignments for undisclosed sums.

Currently, forest policy studies are being done by the Forestry Division as a precursor to a final forest policy review.

As a part of this author's forest policy study, a questionnaire was prepared and sent out to 23 organizations and/or individuals representing key stakeholders and having important roles in forest policy formulation. It asked the following questions:

i. How is the forestry sector being affected by the changing economic reforms in Trinidad and Tobago?
ii. How is the forestry sector contributing to the changing economic reform process?

iii. What real opportunities exist to promote and ensure the sustainable use and management of our remaining forests?
iv. What reforms and adaptations of sectorial policies have been adopted, or would be advisable, to ensure an appropriate balance between the national economic development and the conservation and sustainable use of the natural resources?
v. What is the importance of forestry activities on the rural economy, especially among the poor?
vi. How is it possible to increase the rural commitment and people's participation forestry?
vii. What is our position regarding international agreements and conventions?

# 8. CONCLUSIONS AND RECOMMENDATIONS

## 8.0 Introduction

This forest policy review for Trinidad and Tobago had a duration of three months. Current policies, programmes and practices were examined for their appropriateness and impact on a sectoral and national scale. The major complexities and policy conflicts between forestry and other sectors, as well as those within the forestry sector itself, were highlighted. Starting from the universal conflict of preservation versus exploitation, the study examined local issues affecting state and private land use, as well as forestry issues with regard to their economic, social and environmental effects.

## 8.1 Constraints

There are two main constraints which affected the conduct of this study. The first was the low degree of participation from the persons and agencies whose views were sought, especially after 23 individuals and organizations were sent questionnaires to complete. The absence of feedback from such important stakeholders and other influential agencies reflected an apathy and a missed opportunity on their part, which came as a disappointment. Nevertheless, this report compensated by including the findings from additional literature research so that the stated policies of many of these organizations were represented, giving rise to a balanced report.

The other constraint was with regard to the type of information requested for Section 7, "Policy Studies", which is not catalogued for easy access in any one place. Information regarding budgets, research methodology and related studies on policy was available only on a limited scale and not in detail.

## 8.2 Conclusions and Recommendations

Based on this consultant's personal involvement in the Forestry Division's 1981 forest policy preparation, as well as having a working knowledge of several current policy reviews being undertaken both within and out of the forestry sector, it is my opinion that the capacity for policy formulation and review in Trinidad and Tobago is high. Specific issues which are currently being addressed for the forestry sector include policy formulation to control the use of portable sawmills in the State's forest; control of logging from private lands; and the demonopolization of Tanteak.

On a national scale some issues requiring policy definition include uncontrolled use of private lands in sensitive areas leading to negative environmental impacts, as well as the need for improved management of watersheds for a sustained yield of potable water to meet increasing demands.

In some cases, policy reviews are intrinsic components of multi-lateral lending agencies' conditionalities when providing loans or grants. Currently the World Bank and Inter-American Development Bank are active partners in national parks and watershed projects. Trinidad and Tobago is also considering the renewal of its membership in the International Tropical Timber Organization

(ITTO) whose Year 2000 Objective and International Tropical Timber Agreement (1994) represent some of the most recent and relevant policies relating to the tropical timber trade.

Finally, it is expected that this report will serve as an important input into the current forest policy review exercise being undertaken by the Forestry Division in so far as it inventories and catalogues government's forest policies drawn from several sources; it describes current issues and problems affecting the forestry sector; and finally, it details processes and mechanisms for forest policy formation.

The next logical step would be to apply these inputs and processes to conduct a national forest policy review.

It is expected that as a result of this exercise being conducted simultaneously throughout the Caribbean, FAO would be in a much better position to guide the process to its necessary end through follow-up resource allocation and sharing of expertise in the region.

# APPENDIX I - FOREST POLICY OF TRINIDAD AND TOBAGO (1942)

The Forest Policy of Trinidad and Tobago was drawn up and adopted by Government in 1942 (April). This is stated in its original form below.

## Policy

The main bases on which the Forest Policy of Trinidad and Tobago must rest are as follows:-

a. The necessity for the preservation of protective forest vegetation and the desirability of the protection of the natural flora and fauna.
b. The necessity for the production of considerable quantities of major and minor forest products to meet the needs of the community.
c. The low volume production of timber per acre of marketable species in the natural mixed forests with consequent high cost of exploitation; the past serious overcutting of certain of the more valuable species with consequent scarcity of present supplies; the lack of any market at all for a majority of the species and the insufficient exploitation and utilization of certain species of utility.
d. The destruction of forest capital on an increasing scale even in areas permanently dedicated to forest, caused by the exploitation of petroleum.
e. The dependence on a large importation of soft woods to mainly meet the requirements of the building market.
f. The prevalence of areas of poor soil, coupled with the existence of large areas on non-productive land, the denudation and exposure of hilly land due to mistakes in alienation to agriculture in the past, leading to the necessity for a sound land policy conducive to the optimum usage of land.
g. The major importance of agriculture as a basic industry of the colony.
h. The prevailing lack of knowledge and understanding of the benefits and potentialities of forest and forestry.

In view of the foregoing major considerations, the Forest Policy has been enunciated in the following form:

### ***General Policy***

(i) *Forest Reservation* - To effect the permanent reservation by the Crown of suitably situated areas of forest of a total acreage sufficient to supply the benefits necessary for the welfare of the community - indirect benefits in the form of the maintenance of climatic conditions for agricultural crops, preservation of water supply, prevention of erosion and flooding etc. and direct benefits in the form of the supply of forest produce.

(ii) *Forest Management* - To manage the forest in such a way as to place the utilization of their products on the basis of a sustained yield and to effect such improvement of their growing stock as will enable the colony eventually to become self-supporting in lumber.

(iii) (iii)*Utilization* - To effect the fullest possible utilization of the products of the forests, subject to the requirements of Forest Management, and to encourage the most economic utilization of imported lumber.

(iv) *Research* - To carry out organized research on all branches and aspects of tropical forestry and eventually to establish a Research Branch of the Forest Department.

(v) *Education* - To educate and train the subordinate forest staff, and to educate all classes of the community to an understanding of the benefits and value to the community of scientific forestry.

(vi) *Private Forestry* -To encourage and assist in every possible way owners of private forests and plantations.

(vii) *Land Usage* - To cooperate with all other land interests in the evolution of a sound land policy leading to optimum land allocation and usage, and in all projects for soil conservation and prevention of erosion, and in reclamation work on deteriorated lands.

Detailed consideration of Policy involved in the execution of the General Policy.

**Forest Reservation**

a. The total area of reservation to be aimed at should not be less than 25 per cent of the total land area.
b. In the selection of areas for reservation cooperation must be effected with other land interests and due consideration must be given to the following factors:
   i. **Topography:** In view of the quantity and violence of the rainfall and the dangers of erosion, landslips, flooding and loss of water supply, special attention must be given to hilly country.
   ii. **Water Supply:** Adequate protection must be given to the catchment areas of rivers and streams.
   iii. **Wind:** Suitable reservation on the eastern side of Trinidad must be made to provide shelter belts for the protection of agricultural cultivation from the prevailing wind.
   iv. **Soil:** Except when protective benefits from the primary consideration, areas of poorer soil unsuitable for permanent agriculture should be selected for reservation. Pockets or strips of good soil within the reserves should not be alienated to agriculture.
   v. **Natural Flora:** It is desirable to prevent the destruction and disappearance of types of natural vegetation of scientific interest and aesthetic value.
   vi. **Natural Fauna:** It is desirable to provide shelter and breeding places for the fauna of the Colony.

The survey, demarcation and proclamation of the Selected Forest Reserves should be effected under a sustained annual programme.

**Forest Management**

a. A survey of the forest resources of the Colony must first be carried out by a one or two per cent enumeration in order to provide a sound basis for management.
b. The yield of the forest reserves must then be controlled so as to prevent overcutting and to provide a sustained yield. Simple forms of yield control, such as girth limits should be introduced at first, but the intensity of management should be increased as staff and silvicultural knowledge permit.
c. Special attention must be paid to controlling the cuttings on oilfields situated in Forest Reserves, particularly Reserves of a protective nature, and clearings must be limited to the minimum essential for oil exploitations.
d. Improvement of the growing stock must be effected by silvicultural operations at suitably selected centres. Such operations may take the form of plantations of indigenous and exotic species, and of improvement fellings to obtain natural regeneration supplemented if necessary by artificial regeneration. The aim must be to build up crops of high volume production per acre with consequent low cost of exploitation.
e. The regeneration programme should be gradually extended to cover 800-900 acres per annum, the rates of progress depending on staff, funds and the development of silvicultural technique.
f. In order to effect continuity of management on the foregoing lines, work plans must be prepared for all forest reserves.

**Utilization**

The measures adopted should include:

a. The encouragement of the use of local timber and the improvement of the methods of their exploitation, handling and treatment.
b. The research for substitutes for the valuable species which have become scarce owing to past overcutting.
c. The provision of markets for species at present unsaleable.
d. Efforts to effect the exploitation of the Mora Forests on a commercial scale by competent private timber interests.
e. The encouragement of the use of anti-termite and anti-fungus construction methods and of the introduction of antiseptic treatment of timber, both local and imported, subject to any necessary preliminary research.

**Research**

Organized research must be carried out under the following main heads:

*Production*

a. **Botany:** The collection and identification of all plants, but particularly of woody species forming the forest flora.
b. **Ecology:** The study of individual species, of the habitat, structure and floristic composition of the forest types, and of vegetational succession, retrogression and deflection.
c. **Silviculture:** The study of the silvicultural characteristics of individual species nursery work, regeneration both natural and artificial, improvement fellings, measurement of the rate of growth and output of plantations, introduction of likely exotics.
d. **Soil:** The study of soil in relation to the forest vegetation; preparation of soil maps; soil deterioration.
e. **Diseases and Pest:** The study of harmful insect and fungal diseases and pests and methods of control.

*Utilization*

The study of the wood structure and technical properties of local woods; of seasoning; of the utility of species at present unmarketable; of timber pests, of the antiseptic treatment of local timbers; of the possibilities of paper pulp; and of minor forest products such as gums, tans, resins, fibres, etc.

**Education**

i. The training of the forest staff should take the form of the study of a course in elementary forestry, combined with practical work in the field and followed by examinations.
ii. Educational propaganda of Forest Department leaflets and pamphlets, lectures, articles in the local press, visits to silvicultural centres, etc., should be conducted with energy as time permits.

**Private Forestry**

Executive measures should take the form of technical advice, assistance in marking of thinnings, preparation of simple work, plans and so on.

**Land Usage**

Especially close cooperation must be effected with the Crown Lands and Agricultural Departments. Special attention must be paid to the prevention of the alienation of further Crown Lands and steep hillsides, particularly in the Northern Range, and of Crown Land generally to persons other than bona fide agriculturists, e.g. charcoal burners, in order to present an increase of the already large area of deteriorated non-productive land.

# APPENDIX II - FOREST RESOURCES POLICY (1981)

## Aims

The aims of the Forest Resources Policy of Trinidad and Tobago are:

a. to allocate an adequate area of land in strategic places for forestry purposes;
b. to manage these resources for optimum combinations of their productive, protective, recreational, aesthetic, scientific and educational capabilities to:
   (i) contribute to sound overall land usage,
   (ii) provide the required forest goods and services,
   (iii) contribute meaningfully to the overall socio-economic development of the country,
   (iv) conserve sufficient representative areas of natural ecosystems to ensure their perpetuity,
   (v) ensure that the public is made aware of the importance and management of forests and forest resources,
   (vi) improve the quality of life for citizens.

## Objectives

The objectives of the Forest Resources Policy are:

a. cooperate with other agencies in land use planning, forest reservation, research and management,
b. to create a forest estate of at least 33 percent of the land area of the country,
c. to ensure the maintenance of an adequate forest cover in strategic locations outside of forest reserves,
d. to prepare and execute plans for the management of the forest estate,
e. to encourage, educate and assist private land owners and state agencies in the management of forests, agro-forestry projects, watersheds, wildlife and recreational and other protected areas,
f. to improve forest resources management through integrated research,
g. to optimize the production of timber and other forest produce on a sustained yield basis,.
h. to optimize the use of forest produce and products,
i. to reduce the dependence on imports of forest products,
j. to stimulate the optimal development of forest industries,
k. to conserve important ecosystems,
l. to prevent the extinction of flora and fauna,
m. to encourage public understanding, appreciation and enjoyment of the country's natural heritage,
n. to maintain and improve where desirable the aesthetic integrity of the landscape,
o. to modify environmental conditions so as to enhance agricultural production, protect human settlements and reduce pollution,
p. to optimize wildlife populations,
q. to regulate stream flow, improve water quality and quantity, and minimize soil erosion, siltation and flooding,
r. to educate the public on the values of good forest resources management practices,
s. to generate employment particularly in rural and economically depressed areas,
t. to improve job performance at all levels through motivational and training schemes.

## Sub-Sector Policies

### *Land Use Planning and Forest Reservation*

To sure that all lands best suited for the provision of forest produce and services for the community are managed for these purposes.

### *Forestry Planning*

To prepare plans for the implementation of the Forest Resources Policy so as to facilitate rational development and use of the forest resources.

### *Forestry Legislation*

To ensure the provision and enforcement of adequate legislation to execute effectively the Forest Resources Policy.

### *Forestry Administration*

To equip the forestry administration with the necessary means and structure to best meet the objectives of the Forest Resources Policy.

### *Forest Resources Research*

To organize, develop and implement a research programme and evaluate projects within the programme to meet the needs of forest resources management and utilization.

### *Production Forestry*

To optimize the quality and quantity of forest produce by managing the production forests intensively with the view of obtaining a sustained yield in perpetuity.

### *Utilization and Forest Industries Development*

To optimize the use of forest produce and products.

### *National Parks and Other Protected Areas*

To protect in perpetuity those areas of the country which represent significant examples of the country's natural heritage and to encourage public understanding.

## Forest Recreation

To provide recreational and educational opportunities particularly for local communities in forest areas other than national parks and other protected areas.

## Wildlife Management

To produce a sustained yield of wildlife for recreation and other uses.

## Watershed Management

To regulate stream flow, improve quality and quantity of water, reduce flooding and erosion and protect the aesthetic values of watersheds.

## Private Forestry, Agro-Forestry and Forestry Assistance

To encourage participation in agro-forestry and private forestry and provide technical and other assistance.

## Forestry Publicity and Public Relations

To educate the public to appreciate the values of forest resources.

## Education and Training

To educate and train forestry personnel to optimize job performance.

# APPENDIX III - SUMMARY OF MONTHLY PAID STAFF IN POSITION (AT 97/10/31)

## SUMMARY OF MONTHLY PAID STAFF IN POSITION (at 97/10/31)

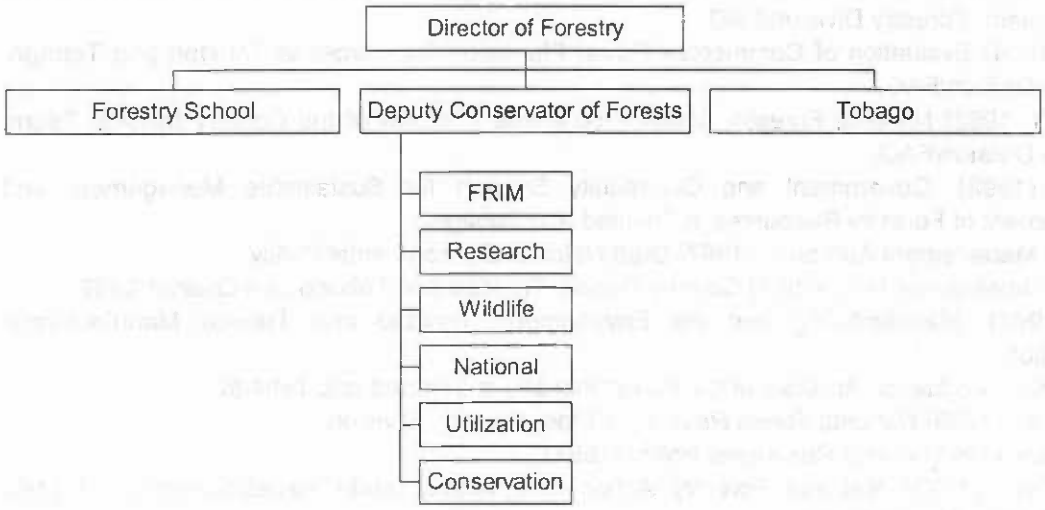
| *Professional Staff* | ***Present Number*** | *Technical Staff* | ***Present Number*** | *Administrative Clerical Staff* | ***Present Number*** |
|---|---|---|---|---|---|
| Director | 1 | Forester IV | 1 | Administrative Assistant | 1 |
| Advisor Environmental/ Ecological Management | - | Forester III | 12 | Accounting Assistant | 1 |
| Deputy Conservator of Forests | 1 | Agricultural Assistant III | - | Clerk Stenographer III | - |
| Director, FRIM | 1 | Forester II | 16 | Clerk Stenographer I/II | 4 |
| Project Director , NRRP | 1 | Agricultural Assistant II | 2 | Clerk III | 2 |
| Deputy Project Director, NRRP | 1 | Forester I | 61 | Clerk II | 2 |
| Wildlife Biologist | 1 | Forester Ranger II | 25 | Clerk I | 13 |
| Civil Engineer 1 | 1 | Forest Ranger I | 52 | Storekeeper I | 1 |
| Computer Programmer | 1 | Game Warden II | 1 | Stores Clerk I | 1 |
| Assistant Conservator of Forests | 3 | Game Warden I | 10 | Clerk Typist | 6 |
| Agricultural Officer 1 | 2 | Engineering Surveying Technician II | 2 | Messenger I | 4 |
| Graduate Trainee | 1 | Statistical Officer | - | Cleaner I | 1 |
| | | EDP Data Conversion Equipment Operator | - | | |
| | | Draughtsman II | 1 | | |
| | | Draughtsman I | 1 | | |
| | | Transport Foreman I | 1 | | |
| | | Motor Vehicle Driver | 3 | | |
| | | Chairman | 1 | | |
| Sub-Total | 13 | Sub-Total | 189 | | 36 |

Summary

| *Type of Staff* | *No. of posts* | *No. in position* |
|---|---|---|
| Professional | 21 | 13 |
| Technical | 274 | 189 |
| Administrative | 39 | 36 |
| Daily Paid* | 581 | 581 |
| Total | 915 | 819 |

*41 - St. Michael and Caura; 449 Permanent; 91 Regular
Forester I Vacancies - 61
Forest Ranger I Vacancies - 17

# APPENDIX IV – FORESTRY DIVISION ORGANISATIONAL CHART



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# FORESTRY POLICY OF TURKS AND CAICOS

**by Sheriff Faizool**

## 1. INTRODUCTION

### Forestry in Turks and Caicos

**Elements of Forestry:** The elements of forestry include trees and forests in support of tourism, recreation and cultural activities, biodiversity and ecosystem maintenance. In addition, forest is maintained for wildlife, national park and protected areas as well as ecotourism. Wood is used in some instances as fuelwood, but no wood industry exists on the islands. The Government agencies involved in managing the various aspects of forestry include the Department of Planning, the Water Authority and the Ministry of Natural Resources. The private sector involvement is limited to water production, amenity plantings and nursery production. There is no proper classification of the forest resource by different vegetation types. However, maps indicate scrub-type forest vegetation, covering up to 90 percent of the non-tidal land area or more than 40,000 ha. The areas of swamp and mangrove-type forest is less than 5 percent of the total land area .

The scrub-type forests are densest on the five Caicos islands, northern Parrot Cay, south-eastern Water Cay and Pine Cay and include some good natural stands of pine *(Pinus caribea var. bahamensis*) which occur in low-lying areas of North and Middle Caicos. These pine stands are generally mixed with hardwood scrub. They are said to be the re-growth which has occurred after Hurricane Donna flattened most of the high vegetation in 1960.

There is no detailed report on species composition, but species include oak (*Bucida buceras*), west indian mahogany (*Swietenia mahagoni*), Lignum vitae (*Guaiacum officinale*), Cordia species and others. Moreover, "Australian Pine" (*Casuarina equisetifolia*) was introduced in former times and can be found naturalized and near human settlements. However, the high demand for charcoal on the territory leads to an indiscriminate felling even of single shade trees by charcoal burners due to the scarcity of mature stands.

There are three private tree and shrub nurseries, two on Providenciales and one on Grand Turks that sell plants to private individuals, hotels and property developers. There is a government operated tree and shrub nursery in North Caicos, which sells plants to private individuals as well as providing tree seedlings for Government planting schemes.

**The Forest Industries Sector:** Apart from the use of very small volumes of natural hardwoods and softwoods as fence posts and charcoal, there is no direct use of the territory's forest land. Consequently, the consumption of forest products should equal imported volumes. A true secondary forest industry does not exist except in joinery work carried out with large construction projects employing labour specifically for such projects. However, ten to fifteen independent local carpenters and joiners are working as contractors in construction works. In recent times, new houses are constructed with building blocks manufactured on the islands since the local timber supply is insignificant. Construction timber is used for trusses, shingles, flooring doors and windows and is primarily, imported material duly impregnated against attacks of fungi and insects.

**National Parks, Sanctuaries and Historic Sites:** An ordinance to provide powers to permit the establishment of parks, nature reserves, sanctuaries and areas of historical interest and generally, for the conservation of the natural environment and ecology of the islands and for purposes connected therewith, was proclaimed in 1975.

The objective of the legislation is to help ensure the preservation of the sites selected. Numerous locations throughout the Islands have been identified as National Parks and other protected areas. Under the laws, visitors are given limited access to Nature Reserves while Sanctuaries may only be visited with a permit from the Department of Natural Resources. Additional protection is provided for some of the wetland areas on the south side of Middle Caicos, North Caicos and East Caicos as international Ramsar Sites. These protected areas allow for the protection of breeding grounds and nurseries for aquatic birds, shallow water plant life, conch, lobster and other marine species.

In 1997, there were 11 national parks, 11 nature reserves, four sanctuaries and seven areas of historical interest that were managed by the Ministry of Natural Resources.

**Birds:** The Turks and Caicos Islands are home to 97 species of birds and temporarily host another 78 species as they migrate through the Island chain. There are numerous bird sanctuaries including the wetlands in the south side of Middle, North and East Caicos Islands.

**Wildlife:** Wildlife is limited to crabs, iguanas, butterflies, insects and an a number of lizards, geckos and tree frogs. Also indigenous to the Turks and Caicos is the very shy pygmy boa constrictor. This harmless little snake is brownish-grey with black and measures a mere foot or two in length.

**The Hole:** Located in Long Bay off Sea Sage Hill Drive, this naturally formed massive limestone "hole" is approximately 40 feet across and 80 feet deep. This formation has a swimming hole at the bottom.

**Glow Worms:** From three to six nights after the full moon, a most unusual phenomenon occurs in the ebbing tide off the Caicos Bank. About one hour after sunset, for 15 minutes, the marine worm *Odontosyllis enopla* performs a sparkling mating ritual.

**Caicos Conch Farm:** This farm was established in 1984 to commercially grow conch eggs to adult (a four year life cycle). The farm has successfully developed hatchery and juvenile rearing techniques and has a current inventory of approximately 1.5 million conchs in all stages. It is unique in that it is the only such facility in the world.

The Queen Conch is a beautiful, pink-lipped shell-fish, often referred to as the "Caribbean Queen". Conch meat has long been a staple food in the Caribbean and is now enjoyed by people all over the world in dishes such as conch salad, conch fritters and conch chowder. The beautiful shell is commonly seen decorating homes and can be made into exquisite jewellery.

## Socio-Economic Profile

In 1996, the Turks and Caicos Islands (TCI) economy showed positive growth, with GDP expanding by between 3 and 4 percent, compared with 3.5 percent during 1995. Growth in 1996 was primarily the result of strong expansion in tourism, although offshore business activity also expanded as a result of the promotional efforts of the Government. These developments which had a negative impact on some operations, took place against the background of difficulties within the Islands' administration. The problems were resolved during the third quarter of the year.

Tourist arrivals rose 11 percent to 87,000 during 1996, mainly as a result of on-going promotion efforts and an improvement in air access to the country. Visitor arrivals from Canada and Europe rose to 8,599 (10.4 percent) and 10,299 (36.2 percent) respectively.

In the offshore sector, new company registrations rose 18 percent(3,376) during the fiscal year April 1996 to March 1997, with activity in other financial services including insurance expanding. In contrast to the performance in service activity, production in the marine sector, in particular conch and lobster catches, declined, mainly as a result of past over-fishing and the imposition of a quota on conch exports to the US, the main trading partner.

Employment in agriculture and fishing dropped from just over 400 in 1980 to 104 in 1990, while construction and installation grew from 283 to 379, for the same period.

Employment in the Government sector continued to grow from just over 700 in 1980 to over 1000 in 1990.The hotel industry now has a total of over 300 persons employed from a total labour force of 3204 in 1990. Details on work permits issued revealed that 173 Americans, 827 Haitian and 109 United Kingdom nationals were hired in 1994 from a total of 2148 permits.

Central Government current revenue for fiscal year 1996/97 was projected to be $38.9 million, which represented a 4 percent increase over the fiscal year 1995/96, reflecting continuing success in the measures adopted by the authorities to improve efficiency and effectiveness in tax collections. Current expenditure increased to $36.66 million in fiscal year 1996/97, an increase of 5 percent over 1994. As a result, the current account surplus declined to $2.1 million, compared with $2.5 million for fiscal year 1995/96.

Reflecting the openness of the TCI economy, its close links with the United States(US) and its use of the US dollar as the domestic currency, domestic prices in TCI have tended to follow US price movements. During the first nine months of 1996, the rate of price growth in TCI was slightly above the 2.3 percent rate.

Economic policy in 1996 continued to stress economic growth and diversification. Additional resources were allocated to further promotion and development of tourism and the offshore sector mainly through the "Team TCI" concept, involving joint public and private sector participation and cost sharing. A number of investment projects was approved and these will have an impact on several of the less developed islands of the TCI. Efforts to promote light industry suffered a set back following the reduction in the quota for rice exports from the TCI to the European Market.

The outlook in 1997 is for continued growth in both sectors, although the tourism sector's performance will continue to remain sensitive to the threat of hurricanes.

# 2. CURRENT FORESTRY POLICIES

Current forestry policy can be divided into two major areas. Firstly, those policies that are international in nature and relate to conventions and agreements that the territory has decided to implement; and secondly, there are policies that are national in nature that the Government has implemented or is in the process of doing so. The international conventions and agreements that the Islands are party to are as follows:

## International Policies

**International Conventions and Agreements:** As a dependency of Britain, the territory in most instances is party to many of the international and regional agreements and conventions. Follow-up action with respect to many of the conventions are not in keeping with agreed schedules.

**Cartegena Convention-** there is need to review the implementation of this Convention.

**Ramsar Convention-** some action in identifying a site has been taken.

**Convention on Biological Diversity-** action is required in respect to strengthening of present legislation and the introduction of new legislation.

**Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)-** this convention is being implemented.

**Country Policy Plan-** this is an agreement between the government of Turks and Caicos and the Government of the United Kingdom which is revised regularly. The Agreement deals with the obligations of both parties and outlines the broad developmental policies of all the sectors of the territory.

## National Policies

At national level, current policies can be divided into those that are covered by legislation, those that relate to national development and finally those that are implemented by the various ministries and agencies. The related national policies, therefore, as they relate to legislation and the various sectors, are as follows:

**Legislation:** Specific legislation for forestry is lacking. Related areas, such as national parks and marine areas, do have required legislation but no documented policy. Related ordinances include protection ordinances for plants, wild birds, fisheries, coasts and National Parks.

**National Development:** The country is in the process of developing a new National Land Use Plan and is expected to revise some of the policy areas of the old plan which covered the period 1987-1997. There is urgent need to assess, compile and endorse all the related forestry and protected areas policies for coordinated development and implementation of the natural resources of the Islands.

## Sector Policies

Current forestry and related sector policies are not defined in any single document, nor is there a forest policy for the territory. It is Government's policy to encourage amenity planting to stimulate the two main development objectives of the Islands; the development of the Islands for offshore banking and business for tourism.

Scrub forest lands are the main source of fuelwood and charcoal.

There is no cutting control, but it is estimated that some 50 to 200 tons, equivalent in fuelwood is removed yearly. Most of the charcoal is made of oak, mainly on North Caicos. There is a small exploitation of pine trees on North and Central Caicos for general use. There are no management plans.

# 3. CURRENT ISSUES AND PROBLEMS

The following is a summary of the issues and problems as identified:

**Energy:** Energy supply is provided by individual diesel-powered plants of about 200 kw capacity which consumes a large portion of the fuel which is imported. Other fuel imports are household fuel, kerosene and liquid petroleum gas. However, a considerable amount of charcoal and firewood is used for cooking purposes, especially on North, Middle and South Caicos and Grand Turk. A balance between high imports of fuel and the use of the forests as a source of fuel will be required.

**Amenity Planting:** It appears impractical to attempt amenity planting on lands that are not fenced because of the problem of livestock. Government shows the political will to enforce present legislation for the proper enclosure of domestic livestock. The livestock, including goats, wander freely, and shrubs and other plants, which are not enclosed, are usually destroyed.

**Biodiversity:** The natural forest lands provide a habitat for a wide variety of the Islands' fauna, some of which may prove to be endemic. Some 184 species of birds have recently been recorded. At least two species of serpents, the miniature python and the pygmy boa constrictor as well as the ground iguana (*Conoloptum subcristatus*), seem to be endangered species being depleted both by local residents and by man-made environmental danger. Appropriate management and administration strategies are urgently needed.

**Watershed Management:** Fresh water supply is critical due to the low rainfall, absence of fresh water rivers and relatively few fresh water aquifers. A comprehensive study of the water resources and sanitation was made in 1981. The catchment areas for fresh water are not characterized by

topographical features, but the whole surface of some islands serves as a catchment area to feed the underground water lenses of those islands which have them. Consequently, the "entire" surface of the islands must be managed as catchment areas. It is, therefore, imperative that a survey of all natural resources be conducted and a detailed integrated land use and development plan be prepared before any major development is undertaken.

**Protection:** The Turks and Caicos Islands represent two ecosystems, the Turks Island and the Caicos Islands, separated by the Turks Islands passage. These ecosystems are exceedingly fragile since the systems are small with low-lying islands. Certain areas within each system are still close to the natural state due to relatively limited utilization by man. The land and sea environments are intimately interrelated as island building depends mostly on the influence of the sea and the presence of vegetation cover, principally mangrove forests. Because of the fragile ecology, development of the islands must be compatible with preservation and proper protection of the natural environment.

**Human Resources:** To manage the varied natural resources which are distributed over a large area will require a number of experts, as well as, a large cadre of well trained staff. A small staff is in place but this is insufficient to manage all the resources.

**Investors:** It is very difficult to manage development of natural resources with only regulations. Committed and adequate staffing, as well as national participation, are required. In many instances, the islanders' interest and that of the investors are not the same . A balance of regulations and enforcement strategies will be required.

**National Land Use Plan:** There is on-going demand for land development in the tourism and business sectors. UNDP is assisting in developing a revised plan and this is expected to be completed by early 1998.The old plan covered the period 1987 to 1997. There is urgent need for the completion of this revised land use plan.

# 4. PROCESSES AND MECHANISMS OF POLICY FORMATION

The processes and mechanisms of policy formation in the Turks and Caicos Islands can be divided into three levels. The first level of policy formation deals with the area of policies for international and regional matters. The second level deals with national matters, while the third and final level with matters related directly to individual ministries or agencies. The following is an attempt to structure the processes and mechanisms as discerned by the author during discussions with various officials on the Islands (Appendix C).

## International and Regional Policies

International and regional issues and agenda setting are driven externally and are taken aboard as an issue mainly at the Executive level. At times, the Administrative level is brought in but this is limited. This also applies to priority setting and option analysis. Implementation of the policy though, is primarily done at the Administrative level. Monitoring, control and evaluation are also driven externally by the institutions and organizations responsible for such matters. Matters dealt at this level are usually conventions, protocols and agreements.

## National Policies

National issues and agenda setting are identified not only at the Executive level but may arise out of an issue affecting the community. Priorities and option analysis are usually done both at the Administrative and Executive levels, however, decisions are taken mainly at the Executive level. Policy formation here relates mainly to the national agenda and as a consequence, is well monitored and evaluated. The process is usually initiated at the Executive level, where the specific problem or issue is discussed and if a consensus can be reached, then a policy decision is made and handed down to the various ministries for implementation. However, if a consensus is not reached, a committee is usually assigned to research and develop a paper for discussion with relevant agencies and interest

groups. This proposal is then forwarded to the Executive for ratification and approval. Once accepted, the policy is then transmitted to the line ministries for implementation. These are usually high-level policies with national implications.

## Sector Policies

At times there are sector issues and problems that are related directly to an institution that can be handled by the specific ministry. In such a case, the matter is then handled by the relevant Ministry with little or no involvement at the Executive level. Forecasting the setting of priorities, option analysis and decision making are all conducted at the Administrative level. The process may also involve a committee and the various stake-holders in all aspects of the policy formation. At times, the process may be extended to include the Executive in the decision making before implementation. Notwithstanding the above, in some instances a policy may just evolve within a Ministry because of past actions. In such a situation, the matter may never be discussed with other interest groups.

There are also matters of a day to day interest that are dealt with by the District Commissioner in each island. Some issues directly related to an island, and specific to that island, are at times handled in consultation with the Chief Secretary. Forestry and related policies are handled by the Ministry of Natural Resources.

# 5. FORESTRY POTENTIALITIES

The economy of the Islands depends a great deal on tourism, recreation, fishing and the naturalness of the islands. Present policies are geared to protect the Islands' naturalness, biodiversity, marine life and shrub forest. Amenity plantings with indigenous species are emphasized. As the Islands are developing, the demand for charcoal will decrease, however, the present demand can be managed without destroying the integrity of the sites. Proper controls and adequate staffing will be needed in the short term.

The forestry potentialities, therefore, lie in the maintenance of natural ecosystems for its protective purposes and its benefits to recreation, marine life, tourism and ecotourism. In the long term, the pine forest, if properly managed, could produce some primary forest products.

# 6. INSTITUTIONAL ARRANGEMENTS

Forestry, wildlife conservation and national parks fall within the responsibility of the Ministry of Natural Resources. There is no unit with direct responsibility for forestry, however, the Department of Environment and Coastal Resources administers forestry and related matters with their major responsibility being the management of national parks and protected areas. This department has a cadre of two professional and 14 enforcement officers. The protected areas include both marine and terrestrial areas and comprise a total of 33 sites.

# 7. POLICY STUDIES

There is no policy study in forestry.

# 8. CONCLUSIONS AND RECOMMENDATIONS

The following recommendations are drawn from discussions with various contacts listed and from the documents reviewed:

- Strengthen the institutional capacity and legislative framework of the authority responsible for the management of coastal and marine resources.
- Strengthen the environmental education programme.
- Coordinate and review all international conventions concerning the protection of the environment, that have been extended to the Turks and Caicos Islands.
- Develop environmental policies on sand mining, rock mining, underwater filming etc.
- Implement management plans for protected areas.
- Use of low-lands, particularly submerged wetlands, should be minimized;
- There is urgent need to assess, compile and endorse all the related forestry and protected areas policies for coordinated development and implementation of the natural resources of the Islands.

# APPENDIX A - COUNTRY PROFILE

**Form of Government:** A British dependent territory; the UK appointed governor exercises power over defence, foreign affairs, the civil service and judiciary, and certain financial matters.

**Head of State** : The present constitution came into effect in 1988, and provides for the government of the Turks and Caicos Islands as a colony under the sovereignty of Her Majesty Queen Elizabeth II of the United Kingdom of Great Britain.

**Executive:** Executive power is vested in a governor, who presides over a seven-member executive council. The legislative has 20 members, of which 13 are popularly elected.

The Executive Council consists of the Governor, the Chief Minister, who is appointed by the Governor, and five other Ministers upon advice of the Chief Minister from among the elected members of the Legislative Council. Three other official members, appointed by the Governor, are the Chief Secretary, the Attorney General and the Financial Secretary. Each member of the Executive Council is allocated a portfolio of responsibilities by the Governor. Under the principle of collective responsibility, all Executive Council members are obliged to support the Legislative Assembly on any measure approved by the Governor-in-Council, unless the Governor has given prior approval to act otherwise. The Governor presides over meetings of the Executive Council, whose advice he must normally take, except in matters of defence, external affairs, internal security, the police and the civil service. The Governor is not required to consult the Executive Council on matters too unimportant to necessitate it, or in matters of urgency, or if it would be prejudicial to the national interest, although he must subsequently report such action to the Executive Council.

**National Legislature:** Members of the Legislative Council are responsible for ministries with permanent secretaries implementing policies and overseeing administration of the departments within the ministries. The Legislative Council consists of a Speaker, 13 elected members, three appointed members, the Chief Secretary, the Attorney General and the Financial Secretary.

**Legal System** : Based on English common law; Court of appeal in London.

# APPENDIX B - BACKGROUND INFORMATION

## GENERAL INFORMATION

The Turks and Caicos Islands are located south-east of the Bahamas. The Islands form two groups. The Turks Islands comprise six uninhabited Cays, two inhabited islands (Grand Turk and Salt Cay), and a large number of small rocky islands. The Caicos Islands comprise six principal islands, including Grand Caicos (24.3 $km^2$), the largest in the dependency, and a number of islets. The total area of the islands is 430 $km^2$. The population (1995) was 14,800, with an overall density of about 27 persons per $km^2$.

The production of salt, formerly the leading industry of the islands, ceased in the early 1980s. The chief exports are crayfish, fish meat, and conch.

The territory is almost flat. There are some low limestone ridges running parallel to the shoreline. Altitudes do not exceed 50 m above mean sea level. The islands rest upon a deep limestone platform, bisected by a deep sea water passage. Soil is immature and generally very shallow and poor. The larger islands possess fresh groundwater lenses.

The territory has a dry sub-tropical climate with two distinct seasons, dry from January to August and wet from September to December. The average annual precipitation is about 711 mm, fluctuating between 330 mm and 1,184 mm. The islands of the Northwest have significantly higher rainfall than those to the Southeast. The main climatic hazards are droughts, which occur fairly often due to relatively long dry seasons, and hurricanes.

## Geography

- The Turks and Caicos Islands are 575 miles south-east of Miami, Florida, 100 miles north of Hispaniola and 39 miles south-east of Mayaguana, Bahamas.
- The Turks and Caicos are part of the Bahamian Chain geographically (However, they are not part of the Bahamas).
- Latitude is between 21oand 22o north.
- Longitude is between 71o and 72 o west.
- The Turks and Caicos are generally thought of as part of the Caribbean when, in fact, they are in the Atlantic.
- The Islands are just a 90 minute flight from Miami, Florida.
- The Turks Islands are comprised of one island and ten Cays.
- The Caicos Islands are made up of six islands and thirty Cays.
- The highest points in the archipelago are 156 feet (on Providenciales and East Caicos).
- Most of the Islands' land mass is twenty feet or less above sea level.
- There are approximately 230 miles of white sand beach in the Turks and Caicos.
- Turks and Caicos have a total land mass of 193 square miles.
- Providenciales is thirty-seven and a half square miles.
- The largest island in the Turks and Caicos is Middle Caicos (once called Grand Caicos) with 48 square miles.
- North Caicos has 44 square miles.
- East Caicos has 18 square miles(twenty six and a half square miles if the surrounding Cays are included).
- West Caicos is nine square miles.
- Pine Cay is 800 acres (Approximately one mile by two miles).
- South Caicos has an area of eight and a half square miles.

## Climate

- On average, the Turks Islands have 20 inches of rainfall per annum.
- The average annual rainfall for the Caicos Islands is 40 inches.
- Temperature is usually 70o in the cool season and an annual average in the high of 80o
- The Islands are cooled by the trade winds of the south-east Equatorial Current.

## Business

- The country is considered to be a reputable and fast growing offshore financial centre.
- The US dollar is the official currency with no currency exchange limitations.
- There are no corporate or personal income taxes (government raises funds through import duties).

## General

- At the present time there are at least 38 nationalities resident on Providenciales.
- "Turks" is considered to be a reflection of the once prolific Turks Head Cactus that resembled a Turkish fez of the name may come from the Mediterranean pirates known as Turks who once patrolled the area.
- "Caicos" is possibly derived from the Spanish word "cayos" which means rocky islands.
- Every inhabited island has an airstrip.
- The Governor's residence is called Waterloo because it was constructed the same year as the Battle of Waterloo (1815).
- Provo is equipped with a decompression chamber to treat diving accidents.

# APPENDIX C - CONTACTS

| | |
|---|---|
| Arthur, Dottins | District Commissioner, Middle Caucus. |
| Astwood, Cynthia | A. L. Chief Secretary. |
| Gardener, Elizabeth | District Commissioner, North Caucus. |
| Garland, Lynn | Chief Scientific Officer Department of Environment A Coastal Resources. |
| Jones, Dalton | Economist, Ministry of Finance. Development and Commerce. |
| Lewis, Gloyd | Permanent Secretary, Ministry of Natural Resources. |
| Kelly, J | Governor of Turks and Caicos Islands. |
| Ramlogan, Rodney | Director of Planning. |
| Smith, Alfred | Chief Engineer. |
| Taylor, Hugh Derek | Chief Minister, Minister of Finance. |
| Wilson, Albertha Lucille | Deputy Chief Secretary. |

# APPENDIX D - LIST OF NATIONAL PARKS AND PROTECTED AREAS

**Turks Islands**: Grand Turk West Shore Marine Park, South Creek Nature Reserve (Grand Turk), Gibbs and Round Cay Nature Reserve, Long Cay Sanctuary, East Cay Land and Sea Park, Penniston Cay and Great Sand Cay Sanctuaries, Salt Cay UNESCO World Heritage Site.

**Providenciales**: Princess Alexandra Land and Sea Park and Nature Reserve, Chalk Sound Park, Frenchman's Creek Sanctuary, Pigeon Pond Sanctuary, Northwest Point Pond and Water Cay Nature Reserve, Cheshire Hall Historical Site, Sapodilla Hill Rock Carvings Historical Site.

**Middle Caicos**: Conch Bar Caves Park, Ocean Hole and Man O'War Bush Reserve, Big Pond Sanctuary, Lucayan Village Historical Site.

**North Caicos**: East Bay Islands Park, Wades Green Plantation Historical Site, Bellview Ruins Historical Site, Cottage Pond Nature Reserve, Bellfield Landing Pond Nature Reserve, Pumpkin Bluff Pond Sanctuary, Dick Hill Creek Nature Reserve, Three Marys Cay Sanctuary, Fort George Cay Land and Sea Park.

**West Caicos**: Yankee Town Historic Site, West Caicos Marine Park, Lake Catherine Sanctuary.

**South Caicos**: Bell Sound Nature Reserve, South Caicos Marine Park, Boiling Hole and Salina Nature Reserve, Six Hill Cay Sanctuary.

**East Caicos**: Iguana Cay, Easy Caicos Land and Sea Park, Joe Grant Cay Nature Reserve.

**Caicos Bank**: French Cay, Bush Cay and Seal Cays Sanctuaries, Molasses Reef Wreck Historical Site

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